RHONDDA URBAN DISTRICT COUNCIL.

REPORT

OF

THE MEDICAL OFFICER OF HEALTH

FOR THE

YEAR 1903.

TREHERBERT:
I. JONES, PRINTER, ETC., STATIONERS' HALL.

PRINTED BY I JONES, STATIONERS' HALL, TREHERBERT.

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Clerks—EVAN R. JENKINS.
EVAN J. OWEN.

In charge of Disinfector:—JAMES ALESBURY and RICHARD HERN.

TELEPHONE NUMBERS.

Medical Officer of Health—Office	...	15a Pentre P.O.
,, ,, ,,	...	7c Pentre Nat.
,, ,, Residence	...	47x Pentre P.O.
Fever Hospital	...	47 ,, ,,
Inspector No. 1 District ...	...	2 Treherbert ,
,, ,, 2 ,, ...	...	17x Pentre ,,
,, ,, 3 ,, ...	...	8 Tonypandy ,,
,, ,, 4 ,, ...	...	13 ,, ,,
,, ,, 5 ,, ...	...	3 Porth ,,
,' ,, 6 ,, ...	...	2 Ferndale ,,

RHONDDA URBAN DISTRICT.

Area	23,884	acres.
Population (Census April 1st, 1901)	113,735	
Population (Midsummer, 1903)	119,652	
Rateable Value	£515,731	
Birth-rate	40·9	per 1,000
Average of previous 10 years	40·7	,, ,,
Death-rate (all causes)	16·7	,, ,,
Average of previous 10 years	20·4	,, ,,
Zymotic Death-rate	2·4	,, ,,
Average of previous 10 years	3·5	,, ,,
Death-rate from Phthisis (Consumption)	·75	,, ,,
Average of previous 10 years	·88	,, ,,
Infantile Mortality	158	
Average of previous 10 years	208	

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CORRIGENDA.

p. 10—Third line from bottom, for " and " read " or."

p. 11—Bottom line, delete the second comma (,)

p. 27—Fifteenth line from top, for "numher" read "number"

p. 32—Fourth line from bottom, for " an " read " no."

p. 33—Fourth line from bottom—delete the comma (,)

p. 43—Thirteenth line from bottom—read " every week " after " required."

p. 43—Fourth line from bottom—instead of " and is " read " the breeze being."

p. 43—Second line from bottom—instead of " 1s. 9d." read " 1s. 11d."

p. 44—First line from top—instead of " 1s. 3d." read " 1s. 5d."

p. 50—Eighth line from bottom—delete the comma (,)

p. 52—Sixth line from bottom—read " on " after " laid."

RHONDDA URBAN DISTRICT COUNCIL.

ANNUAL REPORT

OF

THE MEDICAL OFFICER OF HEALTH FOR 1903

To the Chairman and Members of the Council.

GENTLEMEN—

I beg to present to you my annual report upon the sanitary condition of your district during 1903. Owing to my illness at the commencement of the year, its issue has been somewhat delayed. Its appearance would have been still further postponed were it not for the assistance rendered by DR. J. COOTE HIBBERT to whom my thanks are gratefully proffered for having so well performed a considerable amount of preliminary work in connection with the report.

If the statistics of the year be considered as a whole, such consideration affords some excuse for an indulgence in a little self-congratulation on the part of the Council, for the general death-rate,—16·7 per 1,000 of the living population,—is the lowest recorded for the last 24 years, The most serious blot in the sanitary history of the Rhondda during 1903 was the occurrence of a severe epidemic of Typhoid fever at Porth during the first half of the year, and it affords to those who suffered but little consolation to know that the evidence tends to the conclusion that certain milk which had been infected prior to its importation into the Council's area of administration was the agent which ~~contained and~~ was mainly instrumental in propagating the disease.

Notwithstanding the typhoid epidemic, the zymotic group of diseases as a whole prevailed to a less extent than in any year since 1894, the members of the group presenting the best figures being small-pox, measles, diphtheria, and diarrhœa, for the mortality from each of these four diseases during 1903 was considerably the lowest for many years. The remaining members of the zymotic group,—scarlet fever and whooping-cough,—presented average figures.

The phthisis death-rate of a district is becoming more and more to be considered a reliable indication of its true sanitary state, and it is encouraging to find that the Rhondda death-rate from "consumption" in 1903 is, with the single exception of that for 1900, the lowest recorded for at least 20 years.

Although the perusal of this brief summary may give some measure of satisfaction to those who may justly claim to have had some share in making such a favourable account possible, I may be allowed to remind the Council that doubtless the low death-rate was to a great extent due to circumstances which were in no sense dependent upon the amount of attention which the Council chose to bestow upon the state of their district. Belonging to this category the most general and potent in their salutary influence upon the public health were the meteorological conditions which prevailed throughout the greater part of the year.

In conclusion, it is to be hoped that whatever influence the nature of this brief review may exercise may serve not as an inducement to the Council to rest satisfied with the present state of their district but as an incentive to still greater efforts, for which there is ample scope in the solution of two problems now calling for early and serious attention, problems whose solution will involve the expenditure of a large amount of money, problems which are becoming more pressing from year to year, problems of such vital and supreme importance to the district, that until they are solved the Rhondda cannot hope to be relieved of a constant dread of the occurrence of a water famine with all its attendant evils, or to rank as a district whose authority have successfully grappled with issues, about the need for whose solution there cannot be any diversity of opinion among those who have given the subject special attention.

The two problems are :—

(1) The provision of a more abundant supply of water.

(2) The introduction and establishment of a better system of refuse disposal.

I am,

Yours faithfully,

J. D. JENKINS.

June, 1904.

TOPOGRAPHY.

The district, with an area of 23,884 acres, is about 12 miles long by about 4¾ miles across at its widest part. It is irregularly oval in shape, its greatest width lying between a point close to the junction of Mountain Ash, Aberdare, and Rhondda Urban Districts at Blaenllechau, and a point south-west of Gelli, on the boundary between the Rhondda and the Ogmore and Garw Urban Districts. The district as a whole consists of two narrow, tortuous valleys, which gradually approach each other in their course southwards, and join at Porth, and thence the single valley so formed runs a short course before merging into the upper end of Pontypridd Urban District at Hafod. The two valleys, running at first at some distance from each other, together with the single valley formed by the junction of the other two, are so arranged that they resemble an irregularly-shaped Y. The stem of the Y is formed by the portion of the district extending from Hafod to Porth, and is over a mile long. The limbs, of unequal length, are formed by the Rhondda Fawr valley, which is about 9½ miles long, and by the Rhondda Fach valley, which is of a length barely 6½ miles. Both the valleys at their upper extremities end blindly, or form *cul-de-sacs*; their lateral boundaries are formed by steep hills, which vary in height from about 560 ft. on either side of Hafod, to 1,340 ft. on the north-east of Maerdy, and 1,742 on the south-west of Treherbert. The Rhondda Fawr and the Rhondda Fach valleys are separated by a steep ridge—Cefn Rhondda—which rises from a point 600 ft. just above Porth to a point 1,692 ft. near the upper extremities of the district. The Rhondda River—formed at Porth by the junction of Rhondda Fach and Rhondda Fawr rivers—is 240 ft. above sea-level at the lowest point in the district, at Hafod, while the Rhondda Fawr river attains an elevation of 720 ft. at Blaenrhondda, and the Rhondda Fach the still greater elevation of 920 ft. at Maerdy.

The highest point in the district is Carn Moesau, which is 1,950 ft. high, and is situated at the upper end.

The valleys are very narrow, and allow in many places only sufficient space for the three R's—river, road, and railway. Although the district is a large one, the area actually built upon is comparatively small, for suitable and convenient building ground can be obtained only in close proximity to the river. Here and there, however—as at Treorchy and Ton—the valleys open out a little, and it is mainly at these expansions that considerable numbers of houses have been erected. Leading out of the main valleys are a few side valleys, of which Cwmparc, Clydach Vale, and Cymmer are the most important.

The prosperity of the district is entirely dependent upon its coal, which, in its steam-raising properties, is inferior to none.

THE SUBSOIL.

The Coal-bearing Strata are overlain by Pennant Sandstone, of which the large marjority of the houses in the district are built. Scattered over the district are small areas of clay underlying peat, the latter being sufficiently abundant in some portions of the district to affect the colour and taste of the water. At the few expanded portions of the valleys the rivers are bounded by meadows whose soil is alluvial in character.

AREA.

The district has an area of 23,834·810 acres, and thus forms the most extensive Urban District in the County of Glamorgan, the next in size being Margam Urban District with an area of 18,417 acres, and a population of 9,014 at the last census.

The Rhondda Urban District is however exceeded in area by seven out of the nine Rural Districts in the County.

POPULATION.

119,652.

The estimate here given is arrived at by the method practised by the Registrar-General, which assumes that the rate of increase during the current intercensal period is taking place at the same rate as that which obtained during the previous period, as found at the enumeration of 1901.

This estimate has been checked in this district in two ways:—In the first place, the "natural increase" or difference between the number of births and the number of deaths recorded in the Rhondda since the last enumeration has been added to the last census population. This method does not take into consideration the disparity that probably exists between the immigration and emigration which have taken place since the time of the last census. By this method the estimated population for 1903 is 119,739 persons.

In the second place, the number of new houses passed for occupation since April, 1901, has been added to the number of houses that were found to be occupied at that date, and the total thus arrived at multiplied by 5·92, the average number of persons per house, amounts to 119,388 persons. During the period intervening between the date of the last census and the end of 1903, exceedingly few houses have been condemned, abandoned, or pulled down, so that the persons so unhoused represent a very small and negligible number, and are probably counter-balanced by those who have occupied houses which have been renovated or re-built, and so rendered fit for occupation during the same period.

It is thus seen that the three figures arrived at by three different methods differ but little from one another, the inequality between the two extremes amounting to only 351, while the figure which is at the head of this section, and which I am adopting for the purpose of this report, occupies an intermediate position, being 87 short of the one extreme and 264 in excess of the other.

Of the 76 "large towns" which are periodically dealt with by the Registrar-General in his weekly and other returns, there are but 23 whose estimated populations for June, 1903, exceed that of the Rhondda. With its large area of 23,885 acres, the district, when taken as a whole, is far from being densely populated with its 5·0 persons per acre, but as, owing to the configuration of the district, only a comparatively small area is built upon, the conditions are not so favourable as the average figure would lead one to suppose.

As in the case of the two previous years, the wards will be taken as the units for the purpose of comparing the vital statistics of the different portions of the District.

Table 1 (Appendix) gives the population in each census year since 1801. As recently as 1871, or only 32 years ago, the population of the district was only 23,950, or nearly 100,000 less than the estimate for the present year.

BIRTHS.

	1903.	Average of 10 years. 1893—1902.
No. of births	4897	4274
Birth-rate in Rhondda	40·9	40·7

During the year 1903 the number of births registered in the district amounted to 4897, or 40 births fewer than in the previous year.

Notwithstanding this absolute as well as relative diminution, the birth-rate (the number of births per 1,000 of the population) continues to be exceedingly high as compared with that recorded in the country generally; thus the Rhondda birth-rate is 40·9, while that for the 76 large towns is 29·7, and that for England and Wales only 28·4 per 1,000 living (Table 4). In none of the other "large towns" is a birth-rate of 40 or upwards recorded, the nearest approach to this figure being that of St. Helens, at which the rate was 38·8 per 1,000. During the last decade the lowest point reached in this district was the 37·5 recorded in 1899, and the highest the 44·3 of 1893 (see Table 3).

The "natural increase" in the population, or the excess of births over deaths, throughout the year amounted to 2899 persons.

The second quarter of the year contributed the largest, and the last quarter the smallest, number of births; exactly the converse was the case in the previous year.

The ratio which the number of boys bears to the number of girls—1,075 to 1,000—is considerably higher than the average for the whole country, the usual proportion being 1,040 boys to 1,000 girls.

The smallest number of births was recorded in Ward 1, and the largest number in Ward 10; the lowest and the highest birth-rates occurred in Ward 1 and Ward 6 respectively, the former showing a rate of 35·5, and the latter of 45·0 per 1,000 living (Table 5).

ILLEGITIMACY.

During the year 115 illegitimate births were recorded, rates of 23 per 1,000 of the total births, and of ·96 per 1,000 of the population, being thus occasioned (Table 6).

These rates are about the average for the last nine years, and are well under those for the country as a whole.

As in the case of the country generally, the state of the mother—whether married or single—is found to exercise an important influence upon the prospects of her child of surviving the first year of life. During the year under consideration, no fewer than 37 of the deaths recorded in this district were those of illegitimate children, of whom 29, or 78 per cent., were under one year of age. The infantile mortality among the illegitimates thus amounted to 252 per 1,000 births and compares very unfavourably with the rate for the whole district,—157 per 1,000 births. Several reasons may be advanced to account for this greater risk to the lives of illegitimate children, chief among which doubtless is the usually unfavourable position for child-rearing in which the mothers of the unfortunate children are placed, together with the consequent tendency to "send them out to nurse"; under such conditions it is easy to understand that the attention bestowed upon them is not likely to equal that of a mother, and that pecuniary considerations are apt to unduly and unfavourably influence those who may have undertaken, for certain sums paid down, the up-bringing of such children. It was for the purpose of protecting children thus "farmed" that the Infant Life Protection Act of 1892 was passed, and it is the duty of every Local Authority to provide for the execution of this Act within its own district.

DEATHS.

Number	1,998
Rate per 1000 in Rhondda	16·7
Rate per 1000 in 76 large towns ...	16·3
Rate per 1000 in England and Wales ...	15·4

The number of deaths registered in the district during the year amounts to 1,946, equivalent to a mortality-rate of 16·2 per 1,000 living. This total, however, does not represent the number of deaths of all persons belonging to the district, for many such died and were registered outside the district; on the other hand, deaths occurring in the district of all persons not belonging to the district must be deducted from the total. Belonging to the former category are 53 persons who died at Pontypridd Workhouse, Bridgend Asylum and Cardiff Infirmary; to the latter class only one person has to be noted. Thus corrected the number of deaths of persons belonging to the

Rhondda amounts to the total of 1,998 for the whole year, and represents a death-rate of 16·7 per 1,000 of the living population.

Although the district has been increasing by from two to three thousand persons every year, in no year since 1894 was such a low number of deaths recorded, and the death-rate is the lowest for 24 years, and is as much as 3·6 per 1,000 below the average rate for the last 10 years, and 2·5 per 1,000 below the rate for the previous year. (Table 7.)

When we compare the vital statistics of the Rhondda with those of other large towns, it is found that the improvement is not by any means confined to the former, although Rhondda can point to a greater degree of improvement than the 76 large towns taken as a whole, for the death-rate pertaining to the latter in 1903 is but 1·1 per 1,000 below that for 1902.

There is no doubt that the nature of the meteorological conditions which prevailed during the year accounts for a great proportion of the reduction in the general death-rate, and it is in accord with past experience that a wet year should be accompanied by an unusually low death-rate. It is, however, very questionable whether our district will be able to maintain the relatively greater lowering of its mortality already mentioned as having taken place during 1903, for, on the occurrence of a less favourable year with a hot dry summer, it is not improbable that the Rhondda, with its inadequate supply of water, its many large refuse-tips in close proximity to dwelling-houses, its high birth-rate, and its undue proportion of young and inexperienced mothers, will suffer to a greater extent than other large towns, most of which are more favoured in these respects.

A comparison of the death-rates in the several wards elicits the fact that the mortality-rate has been exceptionally uniform throughout the district, for only 2·3 per 1,000, separate Ward

1 with its 15·3 from Wards 3 and 5, each of which has a rate of 17·6 per 1,000 living. (Table 8.)

When a comparison is instituted between the Rhondda and the remainder of the 76 towns called "large" in the Registrar-General's Returns, it is satisfactory to find that the former has improved its relative position, for it now occupies the 43rd position in the list as compared with the 58th in 1902 (Table 9). Speaking generally, one may say that the larger the population of a town, the higher is its death-rate. Of the 76 "large towns," Rhondda is the 23rd in point of population, but only ten of the 23 have lower death-rates. Of the 33 towns designated "great" previous to 1901, 18 had higher mortality-rates than the Rhondda, as compared with 8 in 1902, and 3 in 1901.

The number and percentage proportion of the deaths, divided into their respective age-groups, which occurred in the Rhondda during the year were as follow:—

778, or 39 per cent., under 1 year of age.
271, or 13 per cent., over 1 year and under 5 years.
83, or 4 per cent., over 5 and under 15 years.
96, or 5 per cent., over 15 and under 25 years.
569, or 28 per cent, over 25 and under 65 years.
201, or 11 per cent., over 65 years.

UNCERTIFIED DEATHS.

During the year 1,946 persons were registered as having died in the district. The number certified by Coroners amounted to 132, while 14 were uncertified; the rest were certified by registered medical practitioners.

In the case of the uncertified deaths, which amounted to only ·7 per cent. of the total, the following causes of death were given by the Registrars:—

Convulsions	7
Epilepsy	1
Inanition	1
Premature Birth ...	5
	14

Of the total, 8 were only a few hours old at the time of death.

STILL-BORN CHILDREN.

I am indebted to Mr. Powell, the clerk to the Burial Board, for the following return of the number of still-born children brought to the three cemeteries for burial during the years 1893—1903.

		Average of 10 years.
1893	239	**273**
1894	246	
1895	256	
1896	295	
1897	229	
1898	210	
1899	271	
1900	312	
1901	348	
1902	333	
1903	**333**	

INFANTILE MORTALITY.

	1903	Average for the 10 years. 1893-1902
Rhondda per 1000 births	158	208
76 Large Towns	144	
England and Wales	132	151

The infantile mortality of a district is expressed as the proportion which the number of deaths of infants under one year of age bears to every thousand births during the same period. It is therefore uninfluenced by any possible error in estimating the population, and is but little affected by the effects of migration.

During 1903, 771 infants under one year of age died within the Rhondda Urban District, and during the same year 4,897 births were registered; the infantile mortality figure is therefore 158 per 1,000 births. This rate is the lowest recorded for at least 11 years, that of the immediately preceding year—178 per 1,000 births—being the nearest approach to it—(Table I).

As in the case of the general death-rate, so here also it is found that the country generally shows some improvement although not nearly to the extent noticeable in the Rhondda. This fact is well demonstrated by the more favourable position among the 76 large towns occupied by the Rhondda in 1903 as compared with the two previous years. In 1901 only one of the 33 "great towns," in 1902 only four of the 76 "large towns," occupied positions below the Rhondda, whereas in 1903 the large towns returning more unfavourable figures than this district were 26 in number—(Table 12).

Notwithstanding the gratifying nature of this improvement, the relative position of our district is still very unsatisfactory in this respect, for the infantile mortality-rate of the Rhondda (158)—continues to be considerably higher than the average for the 76 large towns (144). In this relation the teaching of experience gained in the Rhondda in nowise differs from that obtained elsewhere, for the conclusion is forced upon us that a great proportion of the mortality among infants may be prevented by the exercise of intelligent care on the part of mothers. At the last census, 29 per 1,000 of the married women in the Rhondda were under 21 years of age; under such circumstances it is easy to understand that many indiscretions, often followed by calamitous results, are committed in the up-bringing of the infants of the district. Now that the Council have become, in virtue of the Education Act recently passed, the Education Authority of the district, it is worthy of serious consideration whether it will not be advisable to make an effort to obviate some of this avoidable mortality by instilling into the minds of the elder girls attending school some of the most important rudiments of domestic hygiene. If the scope of the proposed tuition be narrowed, perhaps a better plan, from the point of view of efficiency as well as of enconomy, would be to appoint one or more competent Women Inspectors, who, armed with the requisite knowledge and information, would be able to point out to each inexperienced mother the pit-falls she has to avoid and the methods she should adopt in her efforts to rear healthy and vigourous children.

The most important causes of death among children under one year of age are given in Table 10. As may be seen, none of those given showed any exceptional prevalence as compared with the five previous years; on the other hand, Measles, Lung Diseases, Diarrhœa, and Convulsions were less instrumental than usual in swelling the death-roll. In Table 11 are given the number of infants under one year of age that died from the most important Zymotic Diseases in the several wards.

ZYMOTIC DISEASES.

	1903.	Average of 5 years. 1898-1902.
Total number of deaths in Rhondda from Zymotic Diseases	293	462
Zymotic death-rate for Rhondda ...	2·45	4·10
Zymotic death-rate for 76 Large Towns	1·89	
Zymotic death-rate for England & Wales	1·46	2·0

Under the term Zymotic Diseases are grouped together the following diseases:—Small-pox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Typhoid and other continued Fevers, and Diarrhœa.

The year under consideration has witnessed an exceptional freedom from the above diseases taken in the aggregate, for no year since 1894 shows such favourable figures, either as regards the number of deaths or the death-rate from these diseases. In 1894 the rate was 1·4 per 1,000 of the population, and in 1903 it was 2·4 or 1·65 per 1,000 below the average for the last five years.

Accompanying this improvement in the Zymotic records of the Rhondda there has been a similar though less pronounced improvement in the returns for England and Wales, the rate for the country as a whole averaging only 1·55 per 1,000 since 1901, previous to which year it was invariably 2·0 or more per 1,000.

Notwithstanding the encouraging nature of these figures, the Rhondda occupies a far from satisfactory position among the remaining 75 large towns, the average rate for which was only 1·89 in 1903, and although the relative position of our district in that year was so much better than in 1902, when it was 70th on the list, its *status* as the 61st is still undesirably low, for only 15 of the large towns show higher Zymotic death-rates.

As compared with the previous year (1902), of the diseases constituting the Zymotic Group, Scarlet Fever, Whooping Cough, and Typhoid Fever had increased rates, while Smallpox, Diphtheria, and Measles caused lower rates in 1903. Diarrhœa, the seventh disease in the group, contributed precisely the same number of deaths in the two years (Tables 14 and 15).

A reference to Tables 16 and 17 will enable a comparison to be made between the vital statistics for 1903 of the several wards. By far the most fortunate was Ward 1, with a general death-rate of 15·3, and a Zymotic death-rate of ·6, and Ward 8 with a Zymotic death-rate of 3·6 per 1,000 appears in the most unfavourable light.

Each member of the Zymotic group is more fully considered in the section specially allotted to it.

SMALL-POX.

No case of this disease was introduced into the district in the course of the year 1903.

At the time of writing, reports of a recrudescence of the prevalence of this disease reach us from the Midlands and the North, and should serve to keep us alive to our responsibilities in relation to the prevention of the spread of the disease in the event of its being imported into the district. During its presence in any part of this country, especially if in epidemic form, it is obvious that opportunities for its importation into this district are not likely to remain long non-existent, and it behoves us to be ready and able to cope with such a contingency. However much the general public in certain parts of the country may differ in their opinions as regards the efficacy of vaccination as a preventative of Small-pox, it may safely be affirmed that there are no two opinions as to the absolute necessity, at least in the absence of universal vaccination and re-vaccination, for securing strict isolation of cases of this disease as a means of preventing its extension. In a district such as ours any attempt, in the presence of an epidemic, to secure isolation except at a properly constructed and equipped hospital would be almost certain to result in failure, and may be considered to be outside the sphere of practical measures. In dealing with the few cases which occurred in the Rhondda in 1902, we were at liberty to utilize our old hospital. In view, however, of the undertaking asked for and obtained from you by the Glamorgan County Council and the Local Government Board not to admit any cases of Small-pox into the existing hospital (including both old and new) as long as the institution is employed for the isolation and treatment of cases of other diseases, it is apparent that the only practical way of meeting the want, which we may be made to unpleasantly realize at any moment, is to provide a new institution, altogether independent of, and at a proper distance from, the present one. It will be too late when the disease is amongst us, and the delay in procuring accommodation, which would be unavoidable under such circumstances, would not improbably result in an epidemic of the disease with all its attendant evils, among which may be mentioned suffering and loss of life, disturbance of trade, and an expenditure of an amount of money proportionate to the extent of the epidemic.

The expenditure necessitated by the recent epidemic in London, well-equipped though it is with its hospitals under the control of a central body, has been given as well over half-a-million pounds. It is fair to assume that the occurrence of an epidemic in our district, in the absence of any proper means for the isolation of Small-pox cases, would be proportionally much more extensive in its character, and consequently more disastrous in its effects, as each fresh case would serve as a source of further spread of the disease, and the *foci* would thus continue to be multiplied to an extent only limited by the exhaustion of suitable material in the form of susceptible individuals such as those unprotected by vaccination and re-vaccination.

MEASLES.

	1903	Average of 5 years. 1898-1902
Number of deaths	8	49
Death-rate per 1,000, Rhondda ...	·06	·43
,, ,, 76 large towns	·36	
,, ,, England & Wales	·27	·35

A consideration of the history of Measles in the Rhondda draws one's attention to the fact that the disease has visited the district in epidemic form eight times in the course of the last 20 years (Table 14), the heaviest incidence occurring about the end of a period of an average duration of two years.

The year 1903 has been no exception to the rule for only eight fatal cases were recorded as having occurred throughout the district. This figure is in marked contrast to that which resulted from the epidemic prevalence of the disease in 1902, in which year 109 deaths were caused by Measles alone. Children under three years of age are most susceptible of attack, but after the fourth year of life the mortality from the disease is very much diminished for the reasons that most children have had Measles before they reach that age—so general and widespread is the disease—and, even when attacked, children over four years of age are much better able to withstand the disease. Were it therefore possible to ward off Measles until after the fourth year of life by the adoption of preventative measures on the part of parents no less than on the part of sanitary authorities, the disease would not be, as it is now, one of the most fruitful causes of deaths among young children. In the case of well-housed, well-fed, and well-cared-for children, the disease is much less formidable, and is not so often attended or followed by lung complications, which so often are the immediate cause of fatal terminations.

With the exception of March, when two deaths occurred, no fatal cases of this disease were registered until December, In the latter month Measles became prevalent at Hafod and Porth, into which it seemed to have extended from the adjoining portion of the Pontypridd Urban District, and before the end of the year 6 fatal cases had occurred, mainly at Porth.

Two of the eight victims were under one year of age, and all were under the age of 5 years. (Tables 14, 15, 16, 17, and IV.)

SCARLET FEVER.

	1903.		Average of 5 years. 1898-1902.
Number of cases	872	...	999
Number of deaths	38	...	25
Death-rate per 1,000, Rhondda	·31	...	·22
,, ,, 76 large towns ...	·14	...	
,, ,, England and Wales	·12	...	·12

Scarlet Fever continued to hold its ground during 1903, for 872 cases were notified throughout the year as compared with 833 during the previous year.

When the records for the five previous years are considered the year 1903 does not compare unfavourably with its immediate predecessors, for the average number of cases per annum for that period amounted to 999.

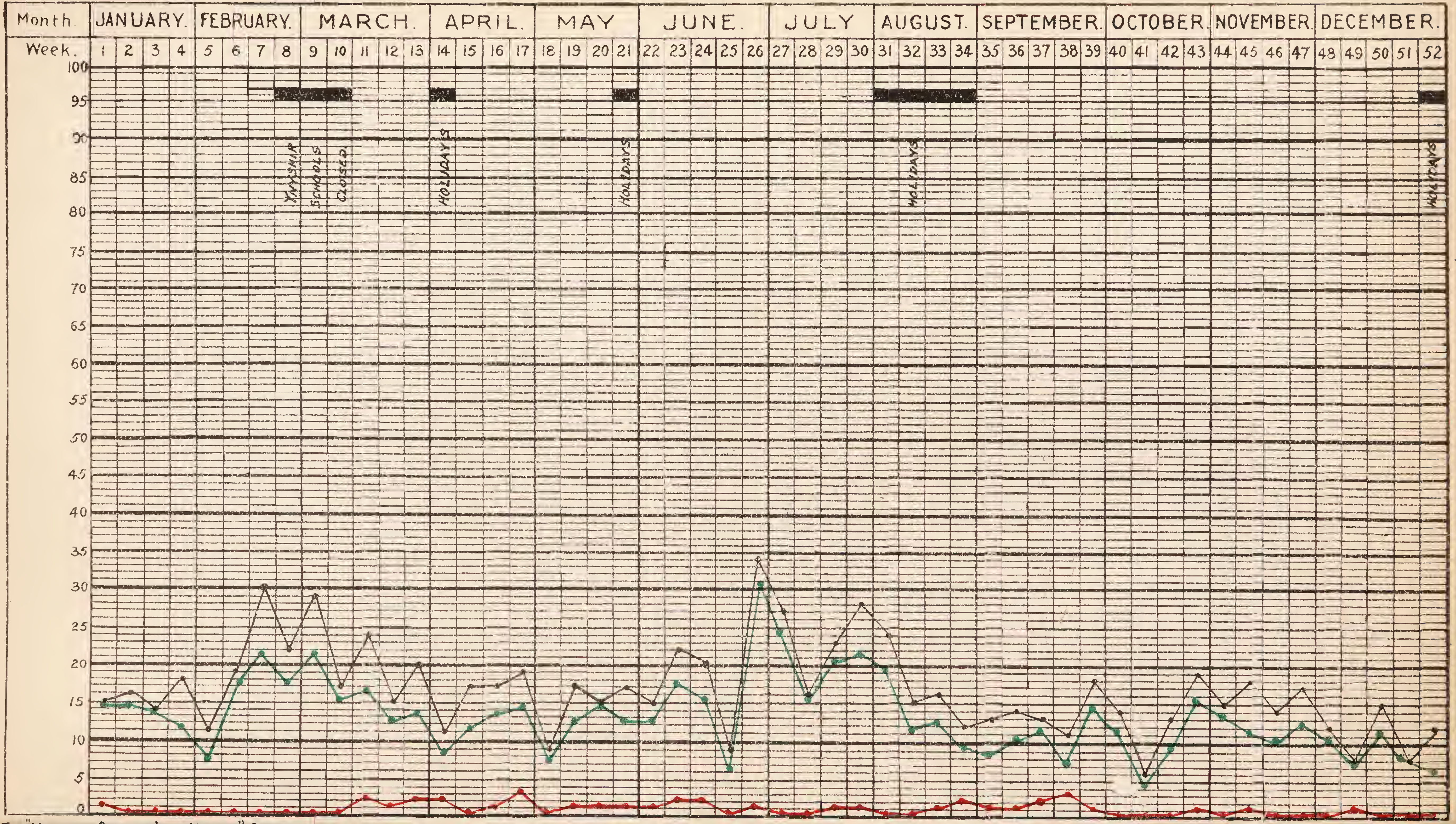
The incidence of the disease during 1903—7·1 per 1,000 of the population—is practically identical with that for the year immediately proceeding. The number of deaths exceeded both the average for the quinquennium and the number for 1902 taken separately.

The fatality (number of deaths for every 100 cases) as well as the mortality (number of deaths for every 1,000 of the population) exceeded the average, the former being 4·35 per cent. and the latter ·31 per thousand.

Chart I.

SCARLET FEVER IN RHONDDA 1903.

NOTIFICATIONS = BLACK. PRIMARY CASES = GREEN. DEATHS = RED.



THE "MEDICAL OFFICER'S OF HEALTH" CHART.   ENT. AT STA. HALL.   *Printed and Published by John Bale, Sons and Danielsson, Ltd., London,* These facts indicate that although the number of cases which occurred showed no excess in relation to the population over the previous year, the disease during 1903 prevailed in a severer form than usual, with the result that the mortality was higher by ·17 per 1,000 than the average for the 76 large towns.

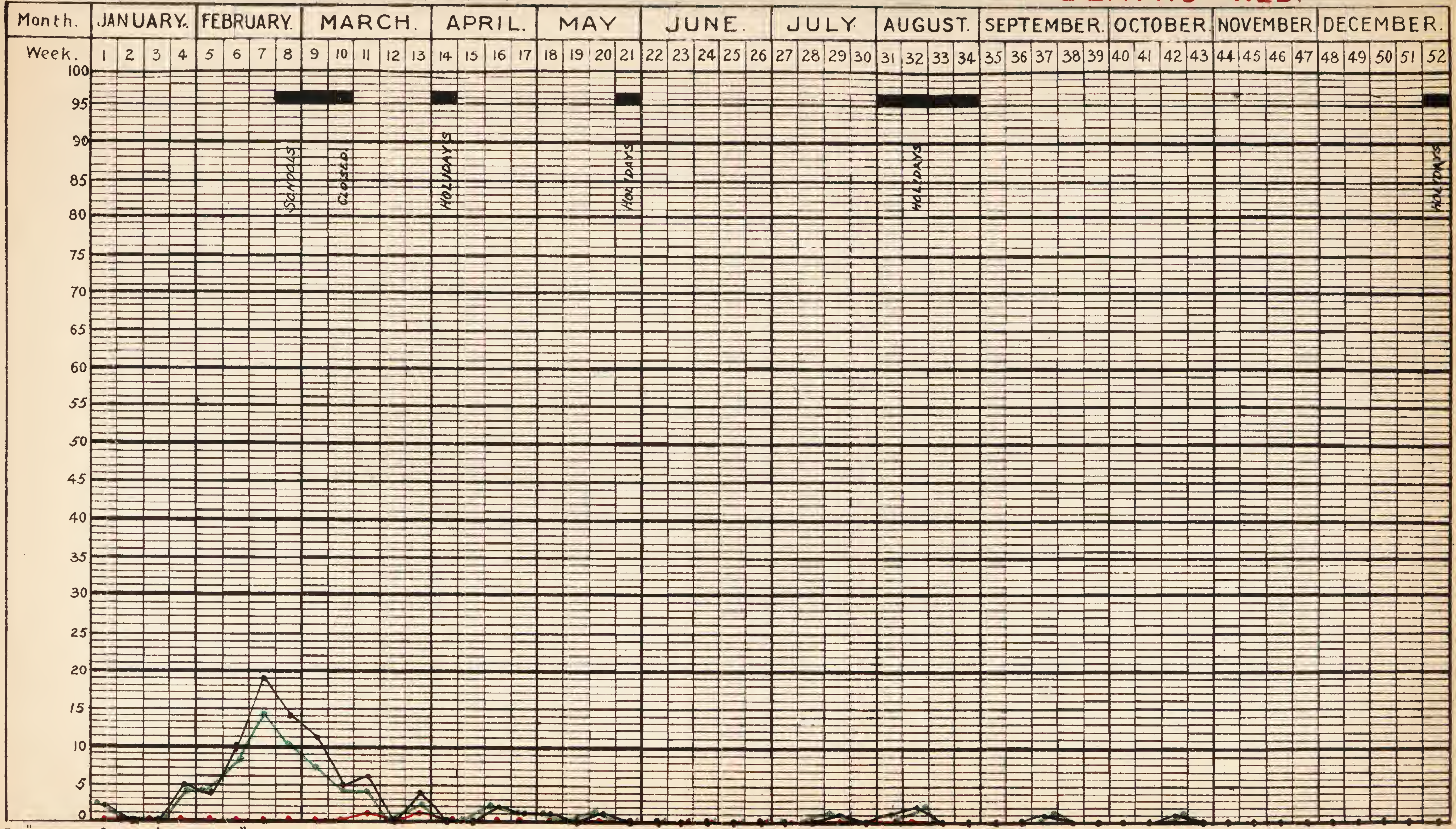
The Inspectors' reports draw attention to the fact that the number of occupants in each infected house was, on the average, nearly one person per house more than the average for the whole district, the latter being at the last census 5·9, and the former 6·8 persons per house. (Table 18.)

Out of the total number notified, 201, or 23 per cent, were secondary cases; this proportion is practically identical with that which obtained during the two years immediately preceding. (Tables 22 and 24.)

At the end of the year there were 68 cases in 55 houses, as compared with 83 cases in 63 houses at the corresponding time of the previous year. (Table 21.)

The disease may be said to have been prevalent throughout the year, and the latter half, taken as a whole, showed but a slight improvement upon the first 6 months. A further analysis of the history of the disease during the year (vide Chart I.) shows that there were two periods of exceptional prevalence, the one covering the latter half of February and the first week of March, and the other the last week in June and the whole of July. Both these call for further consideration. The analysis of the figures, as graphically represented on Charts I. and II., discloses the fact that the number of cases in excess of what may be called the average, which was notified during the former of the two periods of prevalence mentioned, occurred at Ynyshir. On the 24th of February I reported as follows:—" Since January the 1st, 1903, 49 cases of Scarlet Fever have occurred at Ynyshir. Of this number 35 were primary, *i.e.*, occurred in houses which were previously non-infected. Detailed inquiry elicited the facts that 21 out of the 35, or 60 per cent, attended the Ynyshir Elementary School, the departments of which that were involved, except in 2 instances, being those of the girls and infants. In the case of 6 more of the primary cases, others in the same house, although not themselves suffering, attended the same school. There remained only 8 cases which could not be shown to have had a direct or indirect connection with the school. An inspection of the school sufficed to show that the departments affected were considerably overcrowded, and the conditions existing thereat lent themselves to the rapid and extensive spread of the disease in the event of any unrecognized but infectious cases being present. The attendance in the girls' department has fallen 17 per cent., and in the infants' department 18 per cent below the average on account of the prevalence of infectious disease among the scholars." I therefore advised that the departments concerned be closed from the 25th of February until the 16th of March. After the closure the presumably infected class-rooms and ante-rooms were disinfected by Inspector Thomas by spraying the walls, floors, desks, &c, with a solution of Perchloride of Mercury and the rooms were well fumigated with formaldehyde gas. In order to further lessen the risk of a recrudescence of the epidemic after the re-opening, the head teachers of the school were provided with a list of the infected houses, from which no scholars were to be re-admitted into the school until after the children had been declared free from infection and the process of disinfection had been carried out. As indicated on Chart II. the closure was followed by excellent results, for there was an immediate retardation in the rate of occurrence of cases, and by the 16th of March the epidemic was practically at an end; moreover, the re-opening of the school on that date was not followed by a recurrence of the prevalence of the disease in

NOTIFICATIONS = BLACK. PRIMARY CASES = GREEN. DEATHS = RED.



THE "MEDICAL OFFICER'S OF HEALTH" CHART.

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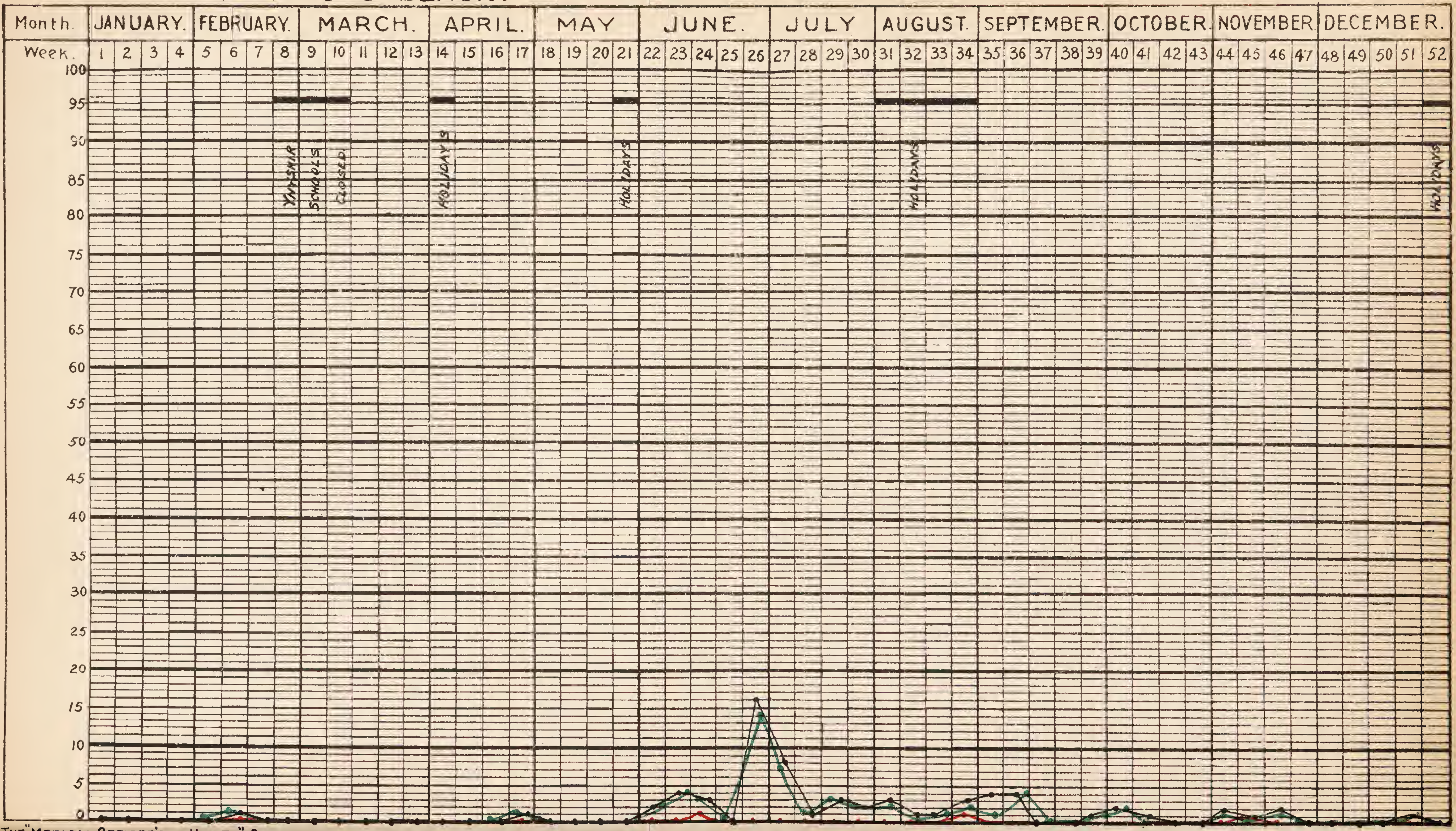
Notes:

Chart III

SCARLET FEVER IN TONYPANDY 1903.

NOTIFICATIONS = BLACK. PRIMARY CASES = GREEN. DEATHS = RED.



THE "MEDICAL OFFICER'S OF HEALTH" CHART.

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this locality. The disease was exceptionally mild in character, for only one death occurred throughout the course of the epidemic.

The second period of prevalence extending from the last week in June to the end of July, was due in the main to a sudden but fortunately short outbreak at Tonypandy. During the 4th week in June, no notifications of this disease were received from Tonypandy; in the next fortnight however 24 cases occurred. The age-incidence, the distribution, and other attendant circumstances gave rise to the suspicion that the local school was largely instrumental in the propagation of the disease. Accompanied by Inspector James Williams, I therefore paid the school a visit, and examined, with the head teacher's consent, all the children attending the classes which contributed the largest number of stricken scholars. Two children were found attending the school while suffering from a mild and unrecognized form of Scarlet Fever in the "peeling" stage. Steps were immediately taken to exclude these two from school. There was an almost immediate check to the rate at which the notifications were received, so that in the 2nd week in July only one child contracted the disease in this locality. (vide Chart III.)

Here, then, were two instances of an epidemic of scarlet fever apparently dependent upon school influence for its occurrence, for each one was arrested by measures directed against the school as a probable factor in the propagation of the disease.

It will have been noticed that the means adopted in our efforts to prevent the extension of the epidemics were different in the two cases although the result was a happy one in each instance.

In the one case the school was closed, whereas in the other only certain scholars were excluded. It is obvious that the interference with education was much greater in the former than in the latter instance. It is not improbable that both these epidemics would have been altogether prevented if the schools were subject to periodical inspection by an expert authorised by the Council as the Education Authority, for such an inspection would probably have served to detect at an early stage the means whereby the disease was disseminated. Under the existing conditions, it is not among the duties of your Medical Officer of Health to examine the scholars after the method practised in one of the instances just given ; it would have been more in conformity with his powers and with the methods of procedure under the Public Health Acts if he had closed the school in each case.

WHOOPING COUGH.

	1903	Average of 5 Years. 1898-1902
Number of Deaths	52 ...	46
Death-rate per 1,000, Rhondda ...	·43 ...	·41
Death-rate per 1,000, 76 Large Towns ...	·33 ..	—
Death-rate per 1,000, England and Wales	·27 ...	·30

Whooping Cough was on the whole rather more prevalent than usual, the number of deaths as well as the consequent rate, being slightly in excess of the average for the last 5 years.

The disease prevailed to a moderate extent during the four quarters, although the months of July and October did not contribute any deaths to the total.

Wards 4 and 5 with 12 and 9 deaths respectively suffered most severely whereas Ward 2 remained free throughout the year (Table 16).

The mortality from this disease alone was ·43 per 1,000 of the population living; but this rate has been exceeded 5 times during the last 10 years (Table 15).

No fewer than 27 out of the total of 52 (51 per cent) were under one year of age

The experience derived from the past year corroborates that of previous years in that a fatal issue is almost invariably due to the complications which so frequently supervene in the course of the disease.

DIPHTHERIA.

	1903	Average of 5 years. 1898-1902
Number of cases	327 ...	1134
Number of deaths	42 ...	134
Death-rate per 1,000, Rhondda ...	·35 ...	1·21
Death-rate per 1,000, 76 Large Towns ...	·20 ...	—
Death-rate per 1,000, England and Wales	·18 ...	·26

It is satisfactory to be in a position to draw attention to a remarkable decrease in the degree of the prevalence of this disease which has been so noticeable a feature of the sanitary history of the Rhondda during the last seven years. The total number of cases for the year amounted to 327, or less than half the number for the previous year (Table 32).

When a comparison is made between the year under consideration and the series of the 5 years immediately preceding, the diminution appears still more remarkable, for the difference between the average annual number for the series and that for 1903 amounts to 807 cases. We have to look back as far as 1897 before finding a lower record; in that year, only 247 cases were notified (Table 34).

The death-rate from diphtheria in 1903 is also the lowest for a still longer series of years, for since 1894, the mortality from this disease has not been below ·6 per 1,000, whereas in the year 1903 it figures at ·35 per thousand (Table 15). Rhondda does not stand alone in this respect, for the country generally has been less afflicted with this disease, though the improvement in the case of the Rhondda is much more pronounced (Table 15).

The disease in the course of 1903 was attended by a somewhat higher fatality than in any year since the use of antitoxine as a remedy became general throughout the district. There were recorded 42 deaths from this disease, equivalent to a fatality of 12·8 per cent. (Table 34.)

The ages at which the disease was most fatal were from 1 to 2 years with 48·0 per cent, and from 4 to 5 years with 27·5 per cent; it was least fatal between 15 and 25 years with no deaths and 6 to 15 years with 2·4 per cent. (Table 33.)

Only 41 or 12·5 per cent of the cases were secondary, *i.e.*, occurred in houses already infected (Table 31), and 39·3 per cent attended no school. (Table 31.)

The percentage of secondary cases has been steadily diminishing since 1898, when a record was first kept, as shown in the following table:—

Year.		Total Cases.		Primary Cases.		Proportion of Secondary cases to total.
1898	...	883	...	629	...	28·7 per cent.
1899	...	1804	...	1288	...	28·6 ,,
1900	...	1102	...	855	...	22·4 ,,
1901	...	1128	...	905	...	19·7 ,,
1902	...	757	...	624	...	16·2 ,,
1903	...	327	...	286	...	12·5 ,

Probably many factors contribute to this result.

1. The disease appears to have been of late years of a less virulent type.

2. The public are gradually learning to appreciate the objects of isolation, and the perseverance shown by the inspectors in connection with the truths they have been endeavouring to inculcate is thus being rewarded.

3. It may be that there are at work certain influences, of the nature of which we have but an imperfect knowledge, such as the meteorological conditions and the state of the soil, which render certain individuals more susceptible of attack or the organism more virulent, or more probably both. It may be supposed that the less morbific influence exerted by these agents throughout the country during the last year or two would not only affect the total number of cases but also of necessity the number of cases in particular houses.

4. It is extremely probable that the hospital has been instrumental in preventing a number of secondary cases by affording, in many instances, the means of removing the source of danger from the attacked houses.

The year 1903 was the first year in which it was possible to effect the removal of a fair proportion of the cases notified. Throughout the year 61 patients or 18·7 per cent were treated at the hospital. It may be argued that this is too small a percentage to materially lessen the frequency of occurrence of secondary cases. It should be remembered however that removal to the hospital was advised and generally effected in precisely those cases which probably would, on account of their surroundings and other attendant circumstances, give rise to secondary cases.

5. It has become less unusual for medical men to suspect the presence of diphtheria in very mild but (to others)

dangerous cases and to utilize the advantages offered by Dr. W. Williams and his staff at the County Laboratory. In this way many cases are recognized as suffering from the disease and the necessary precautions consequently taken to the advantage of the community. As in the previous year, material from every patient is submitted to bacteriological examination before his discharge from the hospital, so as to guard against the possibility of his being a source of danger to others after his discharge.

Chart IV. makes obvious the fact that diphtheria was most prevalent at the beginning and towards the end of the year, Ward 3 being in each case most heavily involved. (Table 35.)

For a number of other points bearing upon this disease, confer Tables 29-35, Appendix.

TYPHOID FEVER.

	1903		Average of 5 years. 1898-1902
Number of cases	275	...	264
,, ,, deaths...	44	...	38
Death-rate per 1,000 for Rhondda ...	·36	...	·34
,, ,, ,, ,, 76 Large Towns	·12	...	
,, ,, ,, ,, England & Wales	·10	...	·17

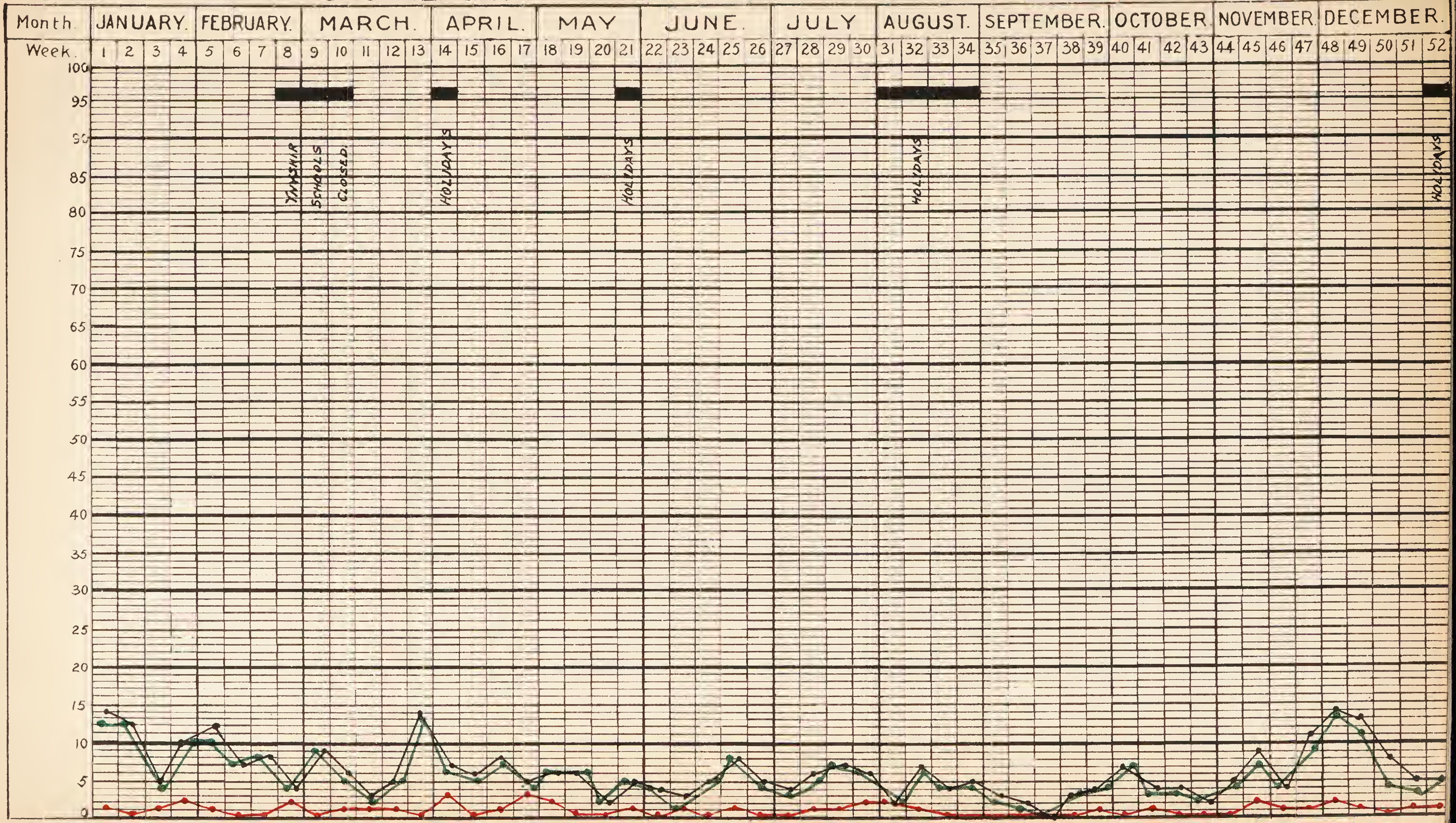
During the year 275 cases of Typhoid Fever were notified, and there were thus 9 cases more than the annual average for the last quinquennium.

The number of deaths amounted to 44, equivalent to a fatality of 16·0 per cent., and to a mortality of ·36 per thousand population. Notwithstanding the epidemic of this disease which occurred at Porth in the first half of the year, the mortality has been exceeded 4 times during the last ten

Chart IV.

DIPHTHERIA IN THE RHONDDA 1903.

NOTIFICATIONS = BLACK. PRIMARY CASES = GREEN. DEATHS RED.



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years, ·97 in 1893 being the highest. (Table 15.)

The incidence of the disease was 2·3 in every 1,000, or 1 in 485 of the population living.

The majority of the cases were removed to the hospital, 161 out of 275 or 58·5 per cent. having been thus dealt with. Of those removed 10 died, equivalent to 6·2 per cent., and of those not removed 34 died, a fatality of 29·8 per cent. being thus occasioned.

The most noticeable, as well as regrettable feature in the sanitary history of the Rhondda during 1903 was provided by the serious milk-borne epidemic of typhoid fever which occurred in Ward 8 (Porth, Cymmer, and Hafod), in the latter end of March and the three succeeding months.

Altogether 169 cases were attributed to this common cause. (See appendix.)

The epidemic had some of the characteristics associated with the milk-epidemics which have taken place elsewhere.

(1) The epidemic was very sudden in its onset. The incidence of the disease shot up within a few days from *nil* to 29 cases a week (see appendix), and at the height of the epidemic 42 cases were notified within 7 days. (Charts V. and VI.)

(2) The proportion of children attacked was higher than is common in this disease, because relatively more milk is usually drunk during that age period.

(3) Practically, all the earlier cases were closely connected with a certain milk-supply, and with that supply only.

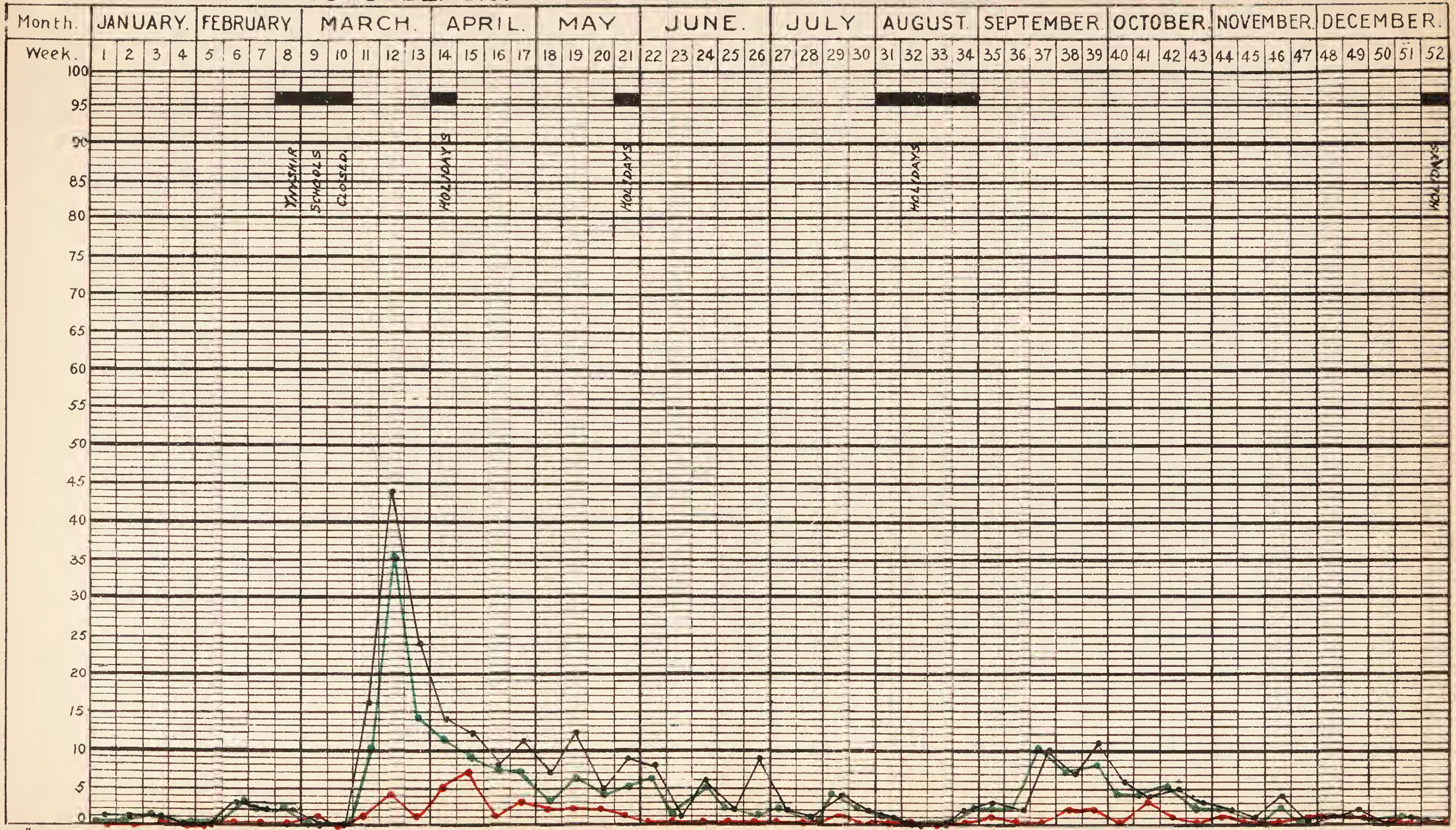
If the Porth epidemic be excluded, there remain only 106 cases to be accounted for, the total number notified amounting to 275, of which 175 occurred in No. 8 ward (Table 36).

The ward to suffer next in severity was No. 7 with 33 cases for the year. The larger proportion of these occurred during September and October, and caused, in great part, the wave of prevalence to be seen on Chart V. as having occurred in those months. In the course of September, 12 cases of typhoid fever were notified from No. 7 ward (more especially Penygraig and Williamstown), and in reporting to the Health Committee thereupon I stated ". . . the illness in each case commenced within 6 days—before or after—of the 5th of September. All the victims were adults,—8 males and 4 females,—and up to the end of the month only one case occurred in each house. All the males were colliers working in 4 different pits, and the infected houses were distributed over a large area. The milk for the attacked houses was supplied by 8 different dealers, who again obtained their milk from as many as 15 farms. With the exception of one farm, which supplied two of the vendors with milk, each farm served but one purveyor. So that any possible contamination of any particular supply could not account for the occurrence of more than 2 of the cases, for no milkman served more than two of the houses affected. Attention was also given to other articles of diet, such as oysters, cockles, etc., which are known or suspected to have at various times acted as carriers of this disease-producing organisms, but no common source of this nature was discoverable. House-to-house inspection of all the infected houses was made by Inspector D. W. Jones and myself, but the sanitary defects when present were not such as to justify one in attributing the disease to their agency. All the houses now under consideration are situated in the water area of the Pontypridd Water Works Co., and, with one exception, derive their water supply from the service tank in Williamstown. This reservoir is situated by the side of the road skirting the foot of Dinas Hill, and is distant about 40 yards from the local school and from the nearest dwelling houses. The site, about 400 sq. yds. in extent, is enclosed by a stone wall about

Chart V.

TYPHOID FEVER IN THE RHONDDA 1903.

NOTIFICATIONS = BLACK. PRIMARY CASES = GREEN. DEATHS = RED.



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Bacteriological Examination :—" The water shows too high a relative abundance of *bacillus coli* to be considered satisfactory."

As in the previous year, much use was made and much gain derived from such use, of the advantages offered by Dr. W. Williams and his staft at the County Laboratory. Such was especially the case in connection with the epidemic at Porth, in the direction of chemical analyses and bacteriological examinations of water and milk derived from several sources and it is difficult to overestimate our indebtedness to them for the prompt assistance which they rendered on the many occasions on which their aid was sought.

DIARRHŒA.

	1903.		Average of 5 years. 1898-1902.
Number of deaths	109	...	165
Death-rate per 1000 for Rhondda	·91	...	1·46
Death-rate per 1000 for 76 Large Towns ...	·71	...	—
Death-rate per 1000 for England and Wales	·50	...	·78

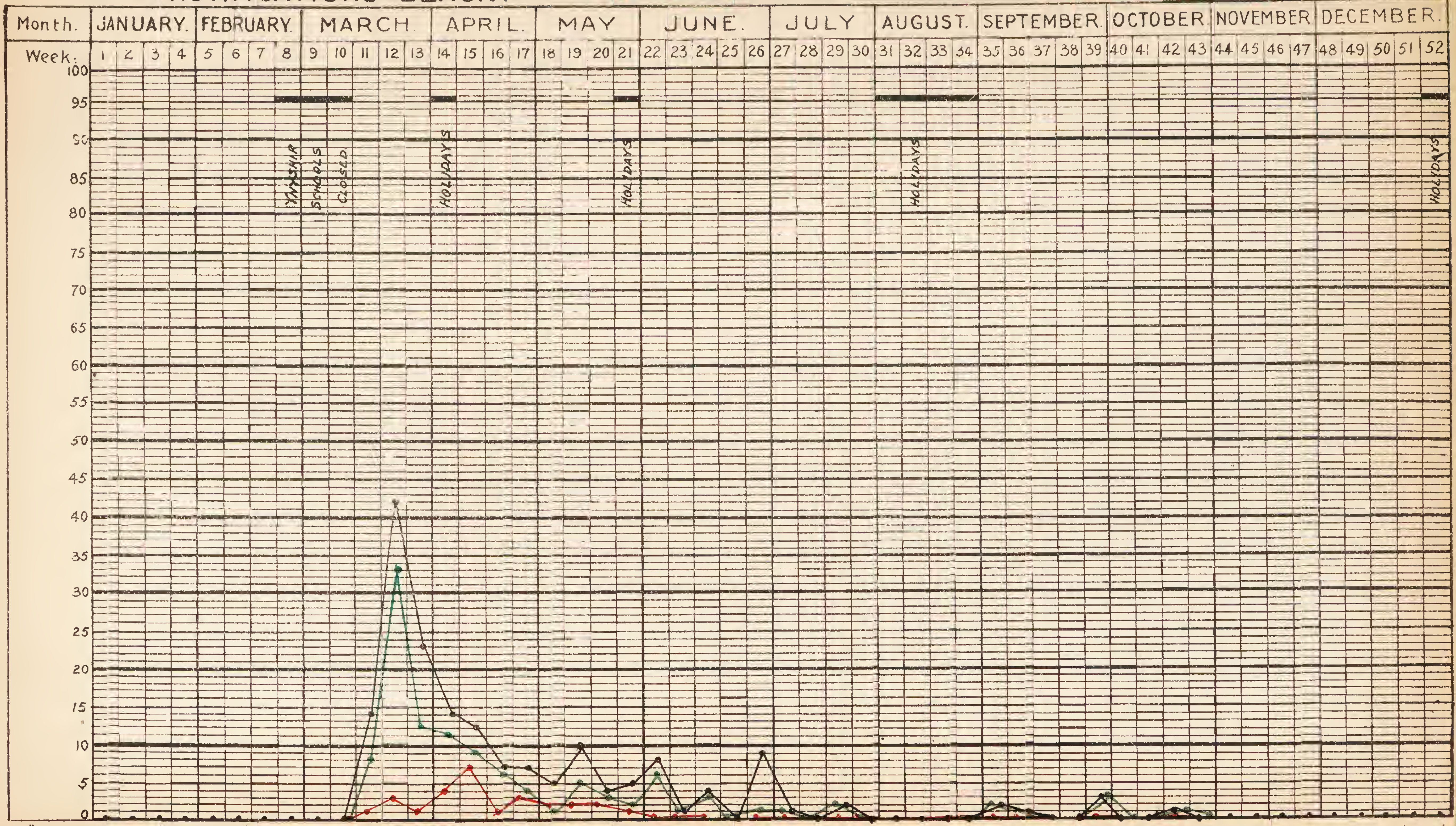
As in other large and populous districts, the prevalence of diarrhœa exhibits marked fluctuations from year to year, the height or depth of the fluctuations depending largely upon the meteorological conditions which obtain during any particular period, a hot dry summer being conducive to increased prevalence, whereas a cold wet summer contributes to the opposite effect.

The year 1903 proved an exception to the general rule, for the number of deaths throughout the Rhondda from the disease did not exceed 109, which was also the number for 1902—another favourable year in this respect (Table 14).

Chart VI.

TYPHOID FEVER IN WARD 8 DURING 1903.

NOTIFICATIONS = BLACK. PRIMARY CASES = GREEN DEATHS = RED



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During the last 10 years the mortality from diarrhœa in the Rhondda in 1903 was exceeded 6 times, the average for that period being ·22 per 1000 above the ·91 per 1000 pertaining to 1903. 88 or 80 per cent. of the fatal cases were under one year of age.

In marked contrast to 1902, Ward 2 is the locality which possesses the worst record for the year, for the number of fatal cases of diarrhœa which occurred therein amounted to 32, equivalent to a death-rate of 2·7 per 1000 (Tables 16 and 17).

The distribution of the feeding-cards drawn up by the instruction of the Health Committee towards the end of 1901 was continued, and we are therefore able to add another year to our figures of comparison.

1901.

No feeding cards distributed.

Sub-District.	No. of Births.	No. of Deaths.	Death-rate per 1000 Births.
Ystradyfodwg ...	3599	267	74
Rest of District ...	987	57	58

1202.

Feeding Cards in Ystradyfodwg only.

Ystradyfodwg ...	3880	85	22
Rest of District ...	1057	23	22

1903.

Feeding cards in Ystradyfodwg only.

Ystradyfodwg ...	3789	88	23
Rest of District ...	1108	21	19

The only deduction that we are able to draw, from the above appears to be that, although the marked improvement,—amounting to 16 per cent.—noticeable in 1902, has not been fully maintained during 1903, the amelioration, amounting to 12 per cent. as compared with 1901, is still sufficiently great to justify me in advising the continuation of the distribution, to the same extent as formerly, which has hitherto been so faithfully and painstakingly performed by Mr. George Williams, the Registrar for Ystradyfodwg.

PUERPERAL FEVER.

	1903.	Average of 5 years. 1898-1902.
Number of cases	21 ...	26
Number of deaths	11 ...	14
Death-rate per 1000 for Rhondda ...	·09 ...	·12

The number of cases of this disease notified during the year amounted to 21, and is thus lower by 5 than the average for the last 5 years. Of this number 11 died, a fatality of 52·3 per cent of cases and ·09 per 1000 of the population being thereby occasioned. (Table 44 and 45.)

The frequency of the occurrence of this preventable disease is, in this district at least, largely dependent upon the knowledge, training, and character of the midwives practising in it. On the 1st, of April, 1903, the Midwives Act came into force, and, as far as it concerns this district, is being administered by the Glamorgan County Council. The Act has been framed with the object of improving the class of women who follow the calling of midwives, any neglect, incompetence, or gross ignorance in the prosecution of whose duties is attended by grave danger to those committed to their care.

We are now witnessing a period of transition from the old order to the new, and it is to be hoped that the faithful administration of the Act which has already been begun by the County Council will result in the gradual elimination of the type of midwife exemplified by "Sarah Gamp," with her little knowledge of, and less care for, what her real duties to her kind should be.

During the year the county authorities were supplied by your Health Department with a list of the names and addresses of 122 midwives then practising as such in the Rhondda. The local knowledge possessed by the Inspectors together with the courteous assistance rendered by the medical practitioners of the district sufficed to make the list a fairly complete and accurate one.

The most important provisions of this Act were given in my last Annual Report, and as the County Council have not deemed it advisable to delegate their powers to the District Council, it would serve no useful purpose to re-insert any of the clauses of the Act.

PHTHISIS.

	1903	Average of 5 years. 1898-1902
Number of deaths	90 ...	97
Death-rate per 1,000 for Rhondda ...	·75 ...	·86

In the course of 1903, ninety deaths from Phthisis were certified. This number of fatal cases occasioned a death-rate of ·75 per 1,000; this rate, with the single exception of that of 1900, is the lowest recorded for the last 22 years. A still more encouraging and reliable indication of the improvement that is steadily going on is the fact that the average death-rate from Phthisis during the last 10 years is ·21 per 1,000 lower than the annual average for the preceding decennium. (Table 47.)

Some occupation was followed by 40 out of the 90, that of collier furnishing 26, equivalent to 72·2 per cent. of the males, or 28·6 per cent. of the total recorded. (Table 46.)

The district wards contributed fairly equally to the total, Ward 7 with 15 cases, and Wards 1 and 4 with 5 cases each, furnishing the largest and smallest numbers respectively. (Table IV.)

INFLUENZA.

	1903
Number of deaths	14
Death-rate per 1,000 for Rhondda	·11

Only 14 deaths were attributed to Influenza throughout the district in the course of the year. One of the victims was under 12 months old, whereas 8, or more than half, were between 25 and 65 years of age. With the exception of Wards 1 and 3, all the wards contributed to the total.

COLLIERY FATALITIES.

Number : 59,—equivalent to a death-rate of ·49 per 1,000.

In the absence of explosions, the number of deaths caused in this way is fairly constant, the extremes since 1897 being the 42 of 1898 and the 63 of 1901. Falls from roof and being run over by trams are the most fruitful sources of danger.

INQUESTS.

Total : 133,—equivalent to a death-rate of 1.1 per 1,000.

If the accidents associated with the collieries be excluded, the number falls to 74, or ·61 per thousand. (Table 48.)

THE FEVER HOSPITAL.

Accommodation :	New Hospital	...	32 beds.
	Old Hospital	...	4 beds.

During 1903, practically twice as many cases were treated at the hospital as in the previous year, the figures being 222 and 112 respectively. There was, however, less variety in the nature of the cases admitted, for owing to the absence of Small-pox from the district, only Diphtheria and Typhoid Fever were treated at the hospital in the course of the year under consideration. The following table shows the number of cases, the number of deaths, and the fatality (per cent.) in respect of each disease under treatment at the hospital throughout the year:—

	NO OF CASES.	NO OF DEATHS.	FATALITY (PER CENT).
Diphtheria ...	61	3	4·9
Typhoid ...	161	10	6·2
Totals ...	222	13	5.8

The following table furnishes particulars as to the wards whence the patients were drawn :—

	DIPHTHERIA.	TYPHOID.
Ward 1 contributed ...	1	15
Ward 2 ,, ...	4	4
Ward 3 ,, ...	16	0
Ward 4 ,, ...	14	7
Ward 5 ,, ...	0	5
Ward 6 ,, ..	5	2
Ward 7 ,, ...	4	22
Ward 8 ,, ..	8	96
Ward 9 ,, ...	5	7
Ward 10 ,, ...	4	3
	61	161

Owing to the occurrence of the milk-borne epidemic of Typhoid Fever at Porth, the number of cases of that disease admitted into the hospital was unprecedently large, and for a period of several months the institution could not be considered other than overcrowded. Throughout the time over which this epidemic extended, all the members of the staff were required to work at very high pressure, and frequently, indeed generally, had to forego their off-duty time. The favourable figures given in the first table in this section are sufficient proof of the highly satisfactory character of the services rendered by Miss E. M. Procter and her staff.

The following table gives the number of admissions each month. It will be noticed that, owing to the unusual strain upon the accommodation for Typhoid Fever, the admission of cases of Diphtheria was discontinued during May, June, and July, as it was only by utilizing the old hospital for convalescents that we were able to deal with so many cases at the same time.

	DIPHTHERIA.	TYPHOID.
January	15	4
February	8	5
March	4	33
April	5	17
May	0	27
June	0	22
July	0	11
August	2	2
September	2	23
October	1	10
November	13	6
December	11	1
	61	161

The accommodation was most severely tested in April, on the 4th of which there were 52 patients in the hospital, and at the end of June there were no fewer than 44 cases of Typhoid Fever in the Institution.

The average time spent in the hospital by recovered cases of Typhoid Fever was 58 days, and of Diphtheria 54 days. In respect of the fatal cases, the average numbers were 13 and 1⅓ days for the respective diseases.

The total expenditure for the year amounted to £1769 9s. 7d., apportioned as follows :—

	£	s.	d.
Salaries and Wages	511	14	3
Bread	36	10	5
Eggs	3	15	6
Fish and Vegetables	71	12	10
Milk	185	17	0
Meat	153	1	11
Groceries	160	9	10
Gas	125	18	11
Coal	117	15	7
Water	45	4	11
Gas and Water Repairs	3	2	11
Firewood	7	6	3
Stationery, Printing, Repairs, &c.	159	1	3
Stimulants (Brandy, &c.)	56	11	0
Horse-hire	6	5	0
Bedsteads and Mattresses	18	12	9
Drugs, Instruments, &c.	67	11	1
Ambulance, Repairs, &c.	26	18	0
Insurance (for 7 years against fire)	12	0	2
	£1,769	9	7

The inclusive cost of maintenance amounted to £1 0s. 7½d. per week per patient.

This rate is 9s. 5d. below that for the previous year owing, in part, to the larger number of patients treated at the institution in the course of 1903, and in part also to the relatively greater expenditure occasioned by the isolation and treatment of the Small-pox cases which occurred in the district in 1902.

Now that the hospital has been brought up, for the time being, to the requirements of the County Council, that body has undertaken to pay " half the Establishment Expenses." The District Council will thus benefit to the extent of about £700 a year.

In the latter half of the year, an important change in the *personnel* of the Staff was necessitated by the resignation of Miss Edith M. Procter, who had been Matron of the institution since its opening in March, 1902. The vacancy was filled by the appointment of Miss R. E. Smith, of Liverpool and Belvidere, Kent.

SCAVENGING AND REFUSE DISPOSAL.

The method of scavenging adopted and practised by the Council is to divide the district into a number of sections, the scavenging of each of which is done by contract, the period extending from October 1st to September 30th of the following year.

In 1903, the number of sections was increased to 28 as against 19 in the previous year, the change being effected with the object of enabling contractors in a smaller way of business to tender, and so to increase the competition. On the other hand the number of refuse depôts had to be reduced on account of increasing difficulty in obtaining sites for this purpose; while there were 19 of these available in 1902, it was possible to use only 17 in the following year. The scavenging is done daily (except Sundays) between the hours of 8 .am. and 1 p.m.

A series of offences is specified in the tender forms for the commission of any of which a fine is imposed by the Sanitary Inspectors under whose supervision the scavenging is done. In some cases, however, the contractor profits by committing an offence *e.g.*, the surreptitious tipping of a load at some situation near the point of collection may under certain circumstances be more profitable, the fine notwithstanding, than conveying it to a distant refuse depôt. In the course of the year one scavenger, on information laid by Inspector J. Towy Thomas was prosecuted and fined £2 and costs at the Police Court under Section 47 of the Public Health Acts Amendment Act, 1890, for tipping a load of house refuse into the river. It would, therefore, be well when drawing up the specifications for the next contracts, to increase the fines for certain offences.

The total cost for haulage does not differ much from that of the previous year, the sums being £6,165 for the year 1902-3, and £5,647 for 1903-4. The cost of scavenging each house in the latter year amounts to 5/6 as compared with 3/2 in 1893-4, and 6/- in 1902-3.

Many of our tips are within 100 feet of dwelling houses or their curtilages, and as many more are immediately adjoining the main road. It is, therefore, comprehensible why they are a source of frequent complaint from those dwelling in the houses as well as from passers-by.

In spite of the labours of the Scavenging Committee, formed in 1902, for the special purpose of formulating a practicable system of refuse disposal, this question still remains to be one calling for the early and careful attention of the Council. It at first appears surprising that in a district like the Rhondda, which is in some respects more rural than urban in character, the question of refuse disposal should present any special difficulties. Several factors, however, contribute to render the problem a difficult one to solve. In the first place the hilly nature of the district makes the cost of haulage of the refuse to outlying situations almost prohibitive. In the second place there is so much demand for building sites that the landowners feel very loth to allow the Council to deposit the district's refuse in situations which would be rendered in consequence, unsuitable for use in a more profitable direction. Again the very large area of the district, with its many centres of population, accentuates the objection, on the score of expense, to the disposal of the refuse by means of destructors, for it is thought that it would be more costly to construct, work, and maintain a number of small plants scattered throughout the district than one large one, while the adoption of the latter plan would very much increase the cost for haulage. The Council is now engaged in considering whether the difficulties may not be overcome at least partially by adopting the method employed by many Colliery Companies in disposing of the rubbish from their pits, viz., by means of railway inclines running for a suitable distance up the hillside, the power hitherto employed in this district being steam·

Another scheme, presented for consideration by Alderman W. H. Mathias, advocates the removal by rail of all the refuse of the district, or such of it as cannot be otherwise satisfactorily disposed of. For this purpose there would be required a few centrally situated sidings provided with suitable means for loading the waggons. From these centres the refuse would then be conveyed to some existing hollow at a situation suitably remote from centres of population. Mr. W. J. Jones, your Surveyor and Engineer, has recently collected some data for the purpose of furnishing the Scavenging Committee with some means of comparing the relative merits of the several schemes under consideration. We do not yet know which scheme further inquiry will decide to be the most economical, but, from a sanitary point of view, the scheme involving the entire removal from the district of the refuse pertaining thereto compares favourably with all others, the only one approaching it, considered from this stand-point, being destruction by fire by means of refuse destructors. If no use be made of the heat derivable from the refuse when burnt in destructors, it may be that removal by rail would be the cheaper, and for this district, equally sanitary, although not so ideal. So many authorities, however, are combining refuse destruction with steam-raising for various purposes, such as the generation of electric light, electric power, pumping, the driving of different kinds of engines, etc., that the method deserves more attention at the hands of the Council than it has had hitherto, especially in view of the possibility of the Council acquiring a more or less direct control over a system of tramways, which will afford an excellent opportunity of transforming the energy which is derivable from the destruction of the 200 tons of refuse collected daily throughout the district.

The two-cell destructor—Mason's Gasifier—situated at Ystrad, was in use throughout the year, except during a certain period of rest required for effecting necessary repairs. It is capable of burning about 16 tons of refuse per diem, feeding being done night and day. In the course of the year a modification on lines previously outlined in my report for 1901 was effected. The vertical boiler, which formed part of the original plant and which required nearly £4 worth of coal and coke to produce the necessary amount of steam, was replaced by a Babcock and Wilcox boiler, so arranged that the gases from the combustion chamber of the destructor are made to pass over and among the water tubes of the boiler. The result is that no coal or coke is now being used with the exception of a few cwts. of coke when the destructor is started at the beginning of every week. It is, however, with the present arrangements, found advantageous, if not necessary, to keep a fire on the boiler-grating and that given by a little coke breeze is found to suffice and is obtained free of cost from the adjoining gas works. The cost of destruction of the refuse is thus reduced to about 1s. 9d. per ton. It is estimated that another innovation in the form of two additional cells would still reduce the cost to about 1s. 3d. per ton because of the greater proportionate amount of refuse destroyed in relation to the additional number of men employed.

SEWERAGE.

The main sewer is the joint property of the Pontypridd and Rhondda Urban District Councils, and discharges into the Bristol Channel, after running a course of 17½ miles. The connection to the sewer of the drains of the houses formerly unconnected has been going on apace, although the absolute number of such connections progressively diminishes from year to year. In the course of 1903 their number was 92 as compared with 120 during the previous year. It is interesting to compare, after the lapse of six years, the number of those still remaining unconnected at the end of 1903 with that at the end of 1897.

Number of houses remaining unconnected in the respective districts at the end of 1903 :—

District No. 1	267
2	80
3	75
4	155
5	129
6	55
Whole District ...	761
Number at the end of 1897 ...	4,290

At the present rate therefore a few more years will serve to see the completion of this very necessary work to the extent to which it is practicable to do so. Several of the groups of houses mentioned in my last report as requiring attention have already been considered by the Health Committee and the necessary work is being proceeded with at the time of writing. In this category we can now include Fernhill (66 houses) and Blaencwm (84 houses).

In the course of this year also some further steps have been taken towards the conversion into pail closets of the ash middens at the Bush Houses, Clydach Vale, for plans have already been passed with that object. The houses in this group are 50 in number. In respect of the group of 139 houses at Cymmer, which possess the pail system of closets although the slop sewage drains are connected to the sewer a final arrangement has been arrived at between the owners and the Council whereby the present system will be changed into the water carriage system which obtains in the district generally. There still remains one large collection of houses which demands the attention of the Council in Appletree, Dinas, where about 50 houses still remain unconnected, because in the case of most of them the sewer is too high. The solution of this question offers some serious difficulties which however may be overcome in one of three ways; in the first place, a subsidiary sewer may be carried down the valley a sufficient distance to provide an adequate fall before being connected to the main sewer ; in the second place, a small bacteria contact bed may be laid down at a convenient situation for the treatment of the sewage derived from these houses ; in the third place, a small pumping plant may be erected for the purpose of driving the sewage to a sufficiently high level to secure enough head to allow it to gravitate to the sewer.

COMMON LODGING-HOUSES.

There was only one registered common lodging-house in the district at the end of the year. Applications for the registration of 3 more were made towards the end of the year, and I was glad to find that one of them, after certain alterations, will make a very suitable one. Such a lodging-house, or a number of such, has been one of the most important needs of the district. Although the Rhondda is not on one of the main thoroughfares of the country and is not much frequented by tramps, the number of comparatively respectable working-men seeking temporary lodgings is very considerable.

REPORTS DURING THE YEAR.

In additional to the ordinary statistical matter, the following subjects were dealt with in the reports placed before the Council during the year:—

Drainage of Bush Houses (2).
Water Supply of Blaencwm (2)
Water Supply of Blaenrhondda.
Outbreak of Scarlet Fever at Ynyshir.
Refuse Tips.
Foundations of New Houses.
Sewer, Wayne Street, Hafod.
Houses unconnected to Sewer in No. 4 District.
Employment of Children Act.
Outbreak of Typhoid Fever at Porth.
The Sewerage of Edmundstown.
Blaenllechau Huts.
Outbreak of Typhoid Fever at Williamstown.

UNSOUND FOOD.

The following were destroyed during the year:--

34 Lbs. of Beef.
1 Side of Bacon.

$10\frac{1}{2}$ Barrels of Apples.
8 Lbs. of Hake.
14 Lbs. of Prunes.
3 Cwts. of Salt Fish.
15 Bunches of Bananas.
4 Boxes of Mackerel.

ADOPTIVE ACTS.

The Infectious Disease (Notification) Act, 1889 ; The Infectious Disease (Prevention) Act, 1890, and The Public Health Acts (Amendment) Act, 1890, Part III., were adopted by the Rhondda Council from January 1st, 1894.

POLICE COURT PROCEEDINGS.

The following is a summary of the details of the cases in 1903 :—

Allowing new houses to be occupied without certificate as to fitness, £3 and 10s. costs.
Allowing new houses (3) to be occupied without certificate as to fitness, £1 for each house and 15s. costs.
Exposure while in an infectious state, £1 and 7s. costs.
,, ,, ,, ,, ,, £2 including costs.
Building without submitting plan, Costs only and order to remove.
Building not in accordance with plan, Costs only and order to alter.
Tipping refuse into river, £2 and 7s. costs.
Depositing refuse on Lane or Street, 10s. and 8s. costs.
,, ,, ,, ,, 5s. and 8s. costs.
,, ,, ,, ,, 5s. and 7s. costs.
Failing to abate nuisances, Costs only, the work being done.
,, ,, ,, ,, ,, ,, ,, ,,
,, ,, ,, £1 including costs and 14 days' order.
,, ,, ,, £1 ,, ,, ,, ,, ,,

DISINFECTION.

Disinfection of infected clothing continues to be done by means of a steam disinfector of the "Equifex" pattern set up at the Hospital, where all the disinfection by steam is carried out. Owing to the illness of James Alesbury, the disinfector was in charge of Richard Hern until the end of September, when the improvement in the former's condition enabled him to resume his connection with the hospital with which he has been so long associated.

The responsible person transmits weekly reports to me with information concerning the nature and description of all the articles disinfected daily, and whence they were obtained. Each report is accompanied by an automatic record of the number of disinfections, and under what pressure they were carried out.

During the second quarter of the year, the disinfection was exceptionally heavy on account of the epidemic of typhoid fever at Porth, for in connection with this disease larger and heavier articles usually called for treatment. The thoroughness with which it was done is indicated by the fact that there was no recurrence of cases after the return of the clothes which could be attributed to clothing which had undergone the process of disinfection.

Aerial disinfection of rooms is usually effected by means of formaldehyde gas generated by means of special lamps. In a small minority, special treatment is followed such as after the occurrence of small-pox when more drastic measures are insisted upon.

WATER SUPPLY.

The District is in the main supplied with water from two waterworks ; one owned by the District Council, and the other by

Pontypridd Water Co. The former is situated at Treherbert, at the upper extremity of the larger Valley, and the latter in a similar position in the lesser Valley, and from 2 to 3 miles distant from Maerdy.

The water-area belonging to the Council has an acreage of 15,182 acres, and contains 11,476 houses, with an estimated population of 68,856 persons. The large majority of these houses are supplied with water by the Council, the total number provided at the end of 1903 amounting to 9647, and containing an estimated population of 57,882 persons. As compared with the previous year, the number of houses which derived their water from the Council's works has increased to the extent of 386, in which dwell about 2316 persons. This number of people at the not excessive allowance of 20 gallons per head, represents a need for the additional supply of 46,320 gallons per diem.

Your Water Engineer, Mr. Octavius Thomas has kindly provided me with the figures representing the consumption per head during the year 1903. Excluding that required for trade purposes, the amount consumed by each person was 13·50 gallons, which is half a gallon per head less than in the previous year.

When it is considered that in the case of the houses supplied, taps are provided in each house, also that the large majority of closets are provided with two-gallon flushing tanks, and that at the last census nearly a $\frac{1}{3}$ of the population were returned as "miners" and therefore need a liberal allowance of water for their daily ablutions, it is surprising that the rate of consumption per head is so low, and to be able to return such figures under such conditions, must have entailed constant watchfulness against leakages on the part of the Water Engineer and his staff. On the other hand a bath is a rarity in the class of houses common in the district, and the Council is not yet in a position to encourage their general use by abstaining from levying a special rate for the privilege.

The total storage capacity available at the Council's waterworks is only 7,000,000 gallons. In a district which is so immediately dependent upon rainfall, this amount is utterly inadequate to meet the needs of the district supplied. The amount of storage capacity at the Council's works is barely sufficient for the domestic requirements of the district's inhabitants for a week. It would appear as if the good fortune shared by the Council during the last three or four summers has lulled them into a state of false security. The meteorological conditions experienced during the last few years, however, serve as no sure indication that the next few years will be eqally favourable ones, and he would be indeed sanguine who dares to hope that there will follow many more years of a character designed to save the Council from the great inconveniences, or worse, of a water famine consequent upon their indecision. Several schemes have already been before the Council, powers have been sought and obtained to carry out one of two alternative ones, but as yet no effective steps have been taken. Towards the end of the year, however, Mr. J. E. Hughes, an experienced Water Engineer, was appointed by the Council to consider and report upon any practicable scheme or schemes in the course of the year 1904, and he is now prosecuting his investigations with the object of assisting the Council to decide upon an adequate and comprehensive scheme. It is to be hoped that all those concerned will assist the engineer in his investigations to all the extent possible, with the view of the more quickly arriving at a decision as to which is the most suitable scheme for adoption, for it is to be feared that the first long drought, will furnish a rude awakening from the feeling of security which appears to have been engendered by a succession of favourable years. The year 1903 was one of the wettest on record, and we cannot expect to have our experience repeated during the present year, or still less for a series of years. The year 1902 furnishes an example of a dry year unaccompanied by any exceptional scarcity of water ; when, however, the rainfall records come to be analysed, it is seen that although the total rainfall was exceptionally low, the amount we had was so well distributed that there was no long period of drought, and although the position became threatening at times a scarcity was obviated on each occasion by a most opportune fall of rain.

The remainder of the houses in the Council's area are supplied from various sources, the local Colliery Company being the provider in many instances; thus—

The National Colliery Company supplies Blaenrhondda.

The Ocean Company supplies Cwmparc.

The Glamorgan Colliery Company a portion of Llwynypia, and the Cambrian Colliery practically the whole of Clydach Vale. Moreover, about 200 houses are supplied from wells, springs or brooks, but this number is gradually becoming less and less, as the character of the water or its scarcity renders it necessary to seek the assistance of the Council.

Towards the end of the year preparations were being made to provide Blaencwm, comprising 80 houses, with water from the Council's reservoir at Treherbert.

The remainder of the district, comprising Rhondda Fach, Rhondda Fawr up to the Council's limit of supply, and the common valley from the junction of the two as far as the lower end of the district, derives its water from the Pontypridd Water Works, with the exception of a group of houses here and there which derive their supplies from private sources. The main supplies of the two Valleys are derived from uncultivated uplands, which present here and there considerable areas of peat. This feature of the gathering ground is more marked in the area of the Pontypridd Company, where the peat is sufficiently pronounced to cause a serious discoloration, which the treatment the water undergoes at the Waterworks does not serve to remove. Apart from any harm which this shortcoming may directly occasion to consumers, the discoloration is an indirect source of danger, for many persons are thereby induced to discard the Pontypridd Water for another which, though apparently more innocent, may from an exceptional liability to contamination possess still more objectionable features.

HOUSE ACCOMMODATION.

As seen from table 49, the amount of building in progress or contemplated shows no sign of abatement. The number of plans passed during 1903 exceeds that of any year since 1894, and the number of houses passed for occupation is the largest since 1897. Notwithstanding this activity in the building trade, there appears to be no diminution in the demand for the class of houses common in the district, ranging in rental from fifteen to twenty-five shillings a month. They are almost invariably built of sandstone, of which there is an abundance in the district itself. There appears to be considerable difficulty in obtaining building sites in some portions of the district, more especially in the upper parts of Rhondda Fach, and it is consequently in the lesser valley that we most frequently find overcrowding. Owing to the continued demand for houses, it is not infrequently experienced that tenants enter into possession before the houses are passed by the District Inspector as fit for occupation, and in several instances owners were prosecuted and fined for allowing the houses to be occupied, in one or two instances before any water had been laid and before the drain connections were completed. Much of the Inspectors' attention is demanded by the constant watchfulness required to prevent the addition to dwelling houses of small annexes generally in the form of glass extensions which, in the large majority of cases, are so constructed as to enclose the only window belonging to the kitchen as well as the area gully. In spite of every vigilance, however, some of the extensions, on account of their position, escape the eyes of the Inspectors, and as plans are not submitted, or, if submitted, are almost invariably rejected, their existence is not discovered until the Inspectors have occasion to visit the houses for some other reason. One or two offenders were prosecuted in the course of the year with apparently a salutary effect on other would-be transgressors.

ADMINISTRATION.

One important change in the constitution of the Sanitary Staff has been called for by the unfortunate and generally regretted death of our much esteemed colleague, Assistant-Inspector W. J. Hughes. He had laboured early and late, in season and out of season, and for a number of years, for the benefit of his district. His successor is Mr. Lewis T. Davies, who, in common with the other Inspectors, possesses the certificate of the Sanitary Institute. Inspector J. Towy Thomas was transferred to No. 2 district, in which the Offices are situated. There was a considerable dislocation of the work occasioned by the unfortunate occurrence already referred to; but the diminished prevalence of infectious diseases,—with the important exception of typhoid fever,—allowed the other Inspectors to perform the most important part of the additional work thus thrown upon their shoulders prior to the appointment of Inspector W. J. Hughes' successor.

The time and attention required by the many visits of inspection which have to be paid to each new building in the course of its erection, from the cutting of the first sod to the time it is fit for occupation, as well as the periodical inspections of the thousand workshops and workplaces in the district, are so considerable that the time has now surely come when the district Inspectors should be relieved of one of these two sections of the multifarious duties now performed by each one of them. Of the two, the supervision of new buildings, on account of the very special knowledge required, would be more appropriately allotted to a special Inspector.

The appointment of Mr. Evan J. Owen as Clerk has relieved me of a great deal of the more clerical part of the office work, and has enabled me to devote more time to more important though not more essential duties.

The amount of work done by the Inspectors in the course of the year is shown in tabular form in tables 49 and 50 in the appendix. These bare figures however convey but an imperfect idea of the amount of time, energy, tact, and patience, which the work they represent has required, and to all the Inspectors as well as the Clerks, Messrs. Evan R. Jenkins and Evan J. Owen, I tender my thanks for faithful and willing services rendered throughout the year; and the fact that we are able to ear-mark 1903 as that possessing the lowest death-rate for at least 24 years is in no small measure due to their exertions.

FACTORY AND WORKSHOP ACT, 1901.

Section 132 of the Act reads as follows:—

"The Medical Officer of Health of every District Council shall, in his Annual Report to them, report specifically on the administration of this Act in Workshops and Workplaces, and he shall send a copy of his Annual Report, or so much of it as deals with this subject, to the Secretary of State."

Recently much of the time of the staff of the Health Department has been devoted to a thorough initial inspection of the Workshops and Workplaces in the district. I say "initial" advisedly, for up to the present time their work would not allow any serious attempt to be made at such an inspection. The number and character of the many industries followed are summarised in the appended table. As seen, the total number of workshops and workplaces amounts to 945, and the amount of work entailed is easily appreciated when it is stated that each room in which an industry was carried on required fairly accurate measuring, and that the number of entries in respect of each workshop or workplace varies from nine to twelve.

Our estimate of the number of premises thus embraced by the Act was much too low, and further investigation will doubtless serve to add not a few to the above number.

Workshops and Workplaces in the Rhondda in Wards.

	1	2	3	4	5	6	7	8	9	10	TOTAL
Boot Makers ...	14	10	9	11	12	16	12	14	7	7	112
Bakers ..	15	20	15	14	17	12	15	22	12	14	156
Blacksmiths ...	2	—	2	2	2	2	2	4	2	—	18
Barbers ..	5	7	11	6	9	10	11	12	7	12	90
Basket Makers	—	—	—	—	—	1	—	—	—	—	1
Carpenters ...	3	5	10	3	5	6	7	7	3	3	52
Fried Fish Shops	6	5	5	8	3	6	5	3	3	12	56
Coachmakers ...	1	—	3	—	1	—	1	2	—	1	9
Confectioners ...	—	—	—	—	—	1	—	—	—	—	1
Cycle Repairers	—	1	2	1	—	2	—	2	—	1	9
Dressmakers ...	35	22	12	10	13	17	6	14	21	48	198
Dressmakers & Milliners (comb)	—	1	—	—	—	—	—	3	1	1	6
Glaziers ...	—	—	—	—	—	2	—	2	—	—	4
Jewellers ..	1	2	5	1	1	6	2	3	2	4	27
Milliners ..	7	11	9	5	6	8	7	5	7	8	73
Knitters ..	1	—	—	—	—	—	—	—	—	—	1
Picture Framers	—	3	1	1	2	—	—	1	—	—	8
Printers ..	1	1	1	—	—	—	—	—	—	—	3
Plumbers ...	—	—	2	1	1	1	1	1	—	—	7
Saddlers ..	2	—	1	—	—	2	2	2	—	1	10
Monumental Masons ...	—	2	—	—	—	3	1	1	—	—	7
Sewing Machine Fitters ...	—	—	1	—	—	—	—	—	—	—	1
Sweet Makers .	—	—	—	—	—	1	—	—	—	—	1
Tailors ...	7	11	14	5	5	9	5	8	7	5	76
Tinmen ..	—	—	—	—	1	1	1	1	—	—	4
Quarries ..	—	—	4	4	2	5	—	—	—	—	15
Rhondda ..	100	101	107	72	80	111	78	107	72	117	945

APPENDIX.

Table 1.

Population of the Rhondda Valleys since 1801.

Year.	Houses.			Persons.			Persons per House.
	Inhabited.	Uninhabited.	Building.	Males.	Females.	Total.	
a 1801				265	277	542	
1811				283	293	576	
1821				309	338	647	
1831				277	265	542	
1841				386	362	748	
1851				493	458	951	
1861	561	107	5	1,669	1,366	3,035	5·4
1871	2,710	32	62	9,559	7,355	16,914	6·2
b 1871						23,950	
1881	9,193	340	158	30,877	24,755	55,632	6·0
1891	13,551	146	374	50,174	38,177	88,351	6·5
1901	19,210	368	112	62,315	51,420	113,735	5·92
Mids'r. **1903**	**20,167**	—	—	—	—	**119,388**	**5·92**

NOTES.

(a) The census returns for 1801 include Rhigos which is not within the present area of the Rhondda District.

(b) Portions of the Llanwonno and Llantrisant Districts were added to the Rhondda District on October 1st, 1879. The Registrar-General estimated the population in the enlarged area in 1871 at 23,950.

Table 2.

Rateable value as stated in Poor Rate.

I am indebted to Mr. Evan Llewellyn for the following statement:—

Year (ending March).	£	General District rate in the £. s.	d.
1884	294,621	1	0
1885	340,003	1	6
1886	334,073	1	6
1887	339,370	1	0
1888	323,885	1	0
1889	350,500	1	6
1890	359,367	1	6
1891	388,879	1	3
1892	397,814	1	6
1893	403,106	1	6
1894	389,524	2	3
1895	382,429	2	9
1896	409,807	2	6
1897	443,290	2	6
1898	451,977	2	6
1899	462,354	2	6
1900	463,387	2	9
1901	490,352	2	9
1902	535,255	3	0
1903	539,336	3	0
1904	**515,731**	**3**	**8**

The assessable value for the half-year, ending March 31st, 1904, is £444,285 10s.

An analysis of the different rateable values shews that 88 per cent. of the houses in the district are rated under £10 per annum, and that 95 per cent. are rated under £20 per annum.

A penny rate produces £1,851 3s. 9d.

Table 3.

Showing the actual number of Births in the Rhondda, and the Birth-rates during the years 1883-1903.

Year.	Total Births.	Birth-rate per 1,000	Average of Ten years.
1883	2,743	44·4	42·0
1884	2,924	45·2	
1885	3,089	45·6	
1886	3,003	42·3	
1887	2,910	39·1	
1888	2,975	38·2	
1889	3,140	38·5	
1890	3,425	40·1	
1891	3,935	44·0	
1892	3,916	42·9	
1893	4,149	44·3	40·7
1894	3,715	38·7	
1895	4,245	43·1	
1896	4,328	42·9	
1897	4,109	39·7	
1898	4,120	38·8	
1899	4,089	37·5	
1900	4.469	40·0	
1901	4,586	40·0	
1902	4,937	42·2	
1903	**4,897**	**40·9**	

Table 4.

Comparative Birth-rate Table for 1903.

	Birth-rate per 1,000
England and Wales	28·4
Rural England and Wales	27·3
76 Great Towns	29·7
103 Smaller Towns	27·4
RHONDDA	40·9

Table 5.

The number of houses, estimated population, number of births, and birth-rate per 1,000 for each Ward.

Ward.	No. of occupied houses.	Estimated population in middle of 1903.	No. of births.	Birth-rate per 1,000.
1	1,676	9,921	353	35·5
2	1,977	11,703	482	41·1
3	1,799	10,649	408	38·3
4	1,650	9,767	419	42·9
5	2,082	12,324	553	44·8
6	1,752	10,371	467	45·0
7	1,701	10,069	426	42·3
8	2,675	15,841	592	37·4
9	2,348	13,899	569	40·9
10	2,507	14,847	628	42·3
RHONDDA	**20,167**	**119,391**	**4,897**	**4·09**

Table 6.

Showing the number of Illegitimate Births.

In Ystradyfodwg Sub-district.

In 1895 there was a number equivalent to 26 per 1,000 of total births.
In 1896 ,, ,, ,, 24 ,, ,,
In 1897 ,, ,, ,, 23 ,, ,,

In 1898 there were 105 equal to 25 per 1,000 of total births.
In 1899 ,, ,, 75 ,, 18 ,, ,, ,,
In 1900 ,, ,, 111 ,, 24 ,, ,, ,,
In 1901 ,, ,, 97 ,, 21 ,, ,, ,,
In 1902 ,, ,, 97 ,, 15 ,, ,, ,,
In 1903 ,, ,, **115** ,, **23** ,, ,, ,,

Table 7.

The number of Births, Birth-rate, number of Deaths, and Death-rate in each year since 1878.

Year.	No. of Births.	Birth-rate per 1,000.	No. of Deaths.	Death-rate per 1,000.
1878	1,531	32·6	749	15·9
1879	1,836	36·6	784	15·6
1880	2,050	38·4	1,287	24·1
1881	2,556	45·2	1,376	24·3
1882	2,682	44·0	1,260	21·1
1883	2,743	43·5	1,339	21·2
1884	2,924	44·1	1,555	23·4
1885	3,089	44·4	1,423	20·4
1886	3,003	41·2	1,821	25·0
1887	2,910	38·2	1,464	19·2
1888	2.975	37·4	1.440	18·1
1889	3,140	37.9	1,645	19·9
1890	3,425	39·8	1,756	20·4
1891	3,935	44·1	2,255	25·2
1892	3,916	42·9	1,805	19·7
1893	4,149	44·3	2,132	22·8
1894	3,715	38·7	1,706	17·7
1895	4,245	43·1	2,246	22·8
1896	4,328	42·9	2,105	20·8
1897	4,109	39·7	2,049	20·1
1898	4,120	38·8	1,979	18·3
1899	4,089	37·5	2,419	22·4
1900	4,469	40·0	2,181	19·9
1901	4,586	40·0	2,431	21·6
1902	4,937	42·2	2,190	19·2
1903	**4,897**	**40·9**	**1,998**	**16·7**

Table 8.

Showing the number of houses, estimated population, number of deaths,, and death-rate per 1,000 for each Ward.

Ward.	No. of occupied houses.	Estimated population in middle of 1903.	No. of deaths from all causes.	Death-rate per 1,000.
1	1,676	9,921	152	15·3
2	1,977	11,703	193	16·4
3	1,799	10,649	188	17·6
4	1,650	9,767	166	16·9
5	2,082	12,324	218	17·6
6	1,752	10,371	170	16·3
7	1,701	10,069	175	17·3
8	2,675	15,841	262	16·5
9	2,348	13,899	218	15·6
10	2,507	14,847	256	17·2
RHONDDA	**20,167**	**119,391**	**1,998**	**16·7**

Table 9.

Death-rate in the 76 Great Towns of England and Wales for 1903, based upon the estimated population at Midsummer, as given by the Registrar-General.

TOWN.	Death Rate.	TOWN.	Death Rate.
1—Hornsey	7·8	39—York	16·2
2—King's Norton	9·9	40—Bradford	16·4
3—Handsworth	10·4	41—Walsall	16·4
4—Leyton	10·8	42—Leeds	16·5
5—East Ham	10·9	**43—RHONDDA**	**16·5**
6—Walthamstow	11·1	44—Plymouth	16·5
7—Croydon	11·8	45—Birkenhead	16·7
8—Bournemouth	12·1	46—Gateshead	16·7
9—Willesden	12.1	47—Huddersfield	16·7
10—Burton-on-Trent	12·3	48—West Bromwich	16·8
11—Barrow-in-Furness	12·7	49—Hull	16·9
12—Reading	12·7	50—Nottingham	16·9
13—Hastings	12·9	51—Rochdale	17·1
14—Tottenham	13·0	52—South Shields	17·2
15—Smethwick	13·4	53—Bury	17·3
16—Derby	13·5	54—Bolton	17·4
17—Aston Manor	13·8	55—Rotherham	17·6
18—Southampton	13·8	56—Birmingham	17·7
19—Wallasey	13·8	57—St. Helens	17·7
20—Cardiff	14·0	58—Great Yarmouth	18·1
21—Devonport	14·1	59—Tynemouth	18·1
22—Brighton	14·2	60—Stockport	18·4
23—Grimsby	14·2	61—Oldham	18·6
24—Leicester	14·2	62—Preston	18·6
25—Northampton	14·2	63—Sheffield	18·6
26—Bristol	14·3	64—Swansea	18·6
27—West Hartlepool	14·3	65—Warrington	18·6
28—Portsmouth	14·7	66—Hanley	18·7
29—Halifax	15·0	67—Salford	18·9
30—Ipswich	15·2	68—Bootle	19·0
31—Norwich	15·2	69—Merthyr Tydfil	19·0
32—West Ham	15·2	70—Burnley	19·1
33—Wolverhampton	15·5	71—Newcastle-on-Tyne	19·2
34—London	15.6	72—Manchester	19·7
35—Blackburn	15·7	73—Sunderland	19·9
36—Newport, Mon.	15·7	74—Liverpool	20·4
37—Stockton-on-Tees	15·9	75—Middlesborough	21·5
38—Coventry	16·1	76—Wigan	22·1

Table 10.

Rates of Mortality in the Rhondda of children under one year of age from the principal infantile diseases per 1,000 births during 1898-1903.

Causes of Death.	1898.		1899.		1900.		1901.		1902.		**1903.**	
	Total Deaths.	Rate per 1000 Births	Total Deaths.	Rate per 1000 Births	Total Deaths.	Rate per 1000 Births	Total Deaths.	Rate per 1000 Births	Total Deaths.	Rate per 1000 Births	Total Deaths.	Rate per 1000 Births
All Causes ...	793	192	1016	248	839	186	1020	222	883	178	**778**	**158**
Diarrhœa ...	177	42	326	80	140	23	267	58	52	10	**88**	**17**
Debility ..	170	41	181	44	71	15	138	30	153	30	**107**	**21**
Convulsions ..	139	33	152	37	165	36	188	41	171	34	**130**	**26**
Lung Diseases ... (except tubercular)	120	29	152	37	121	27	134	29	192	38	**134**	**27**
Premature Birth ..	53	12	56	13	66	14	74	16	53	10	**84**	**17**
Dentition ...	34	8	38	9	28	6	30	6	34	6	**35**	**7**
Whooping Cough ...	19	4	37	9	29	6	18	3	21	4	**27**	**5**
Tubercular Diseases	17	4	21	5	24	5	9	1	20	4	**12**	**2**
Measles ...	4	1	—	—	43	9	2	2	38	7	**2**	**·4**

Table 11.

Deaths under one year of age in the different wards during 1903 from the following diseases :—

Cause of Death.	Ward 1.	Ward 2.	Ward 3.	Ward 4	Ward 5.	Ward 6.	Ward 7.	Ward 8.	Ward 9.	Ward 10
Measles	—	—	—	—	—	1	—	1	—	—
Scarlet Fever ...	—	—	—	—	—	1	2	1	—	—
Whooping Cough ...	—	—	5	7	5	2	3	2	1	2
Diphtheria and Membranous Croup ...	—	—	—	—	1	—	—	1	—	—
Epidemic Influenza ...	—	—	—	—	—	—	—	—	—	1
Diarrhœa	3	27	6	11	8	7	5	5	3	13
Erysipelas	—	—	1	—	—	—	—	—	1	—
Accidents (General) ...	1	2	1	3	2	—	3	1	—	1

Table 12.

Infantile Mortality in the Rhondda and the 76 Great Towns of England and Wales.

TOWN.	Per 1000 Births.	TOWN.	Per 1000 Births.
1—Bournemouth	81	39—Newport, Mon.	146
2—Hornsey	84	40—Bradford	148
3—Burton-on-Trent	92	41—Norwich	149
4—Barrow-in-Furness	97	42—Walsall	150
5—Kings Norton	97	43—Bolton	153
6—Handsworth	100	44—Leeds	153
7—Leyton	103	45—Warrington	153
8—Hastings	105	46—Birkenhead	155
9—Croydon	108	47—Merthyr Tydfil	155
10—Coventry	112	48—York	156
11—East Ham	112	49—Birmingham	158
12—Walthamstow	113	50—**RHONDDA**	**158**
13—Brighton	114	51—Sunderland	158
14—Portsmouth	114	52—Blackburn	159
15—Wallasey	114	53—Liverpool	159
16—Bristol	116	54—Gateshead	160
17—Southampton	116	55—Leicester	160
18—Devonport	117	56—West Bromwich	160
19—Willesden	118	57—Aston Manor	161
20—Huddersfield	120	58—Hull	161
21—Reading	121	59—Oldham	161
22—Cardiff	123	60—Tynemouth	162
23—Halifax	123	61—Preston	163
24—Tottenham	123	62—Bury	164
25—Great Yarmouth	124	63—Bootle	165
26—Derby	129	64—Nottingham	165
27—London	131	65—Swansea	165
28—South Shields	131	66—Newcastle-on-Tyne	166
29—West Hartlepool	131	67—Salford	166
30—Ipswich	139	68—Grimsby	167
31—Smethwick	139	69—Manchester	169
32—Stockton-on-Tees	139	70—Hanley	173
33—Wolverhampton	141	71—Rotherham	181
34—St. Helens	142	72—Wigan	181
35—Northampton	142	73—Sheffield	182
36—Plymouth	144	74—Stockport	185
37—Rochdale	144	75—Middlesbrough	187
38—West Ham	145	76—Burnley	217

Table 13.

Comparative Zymotic Death-rate Table for the Rhondda and the 76 Great Towns of England and Wales in 1903.

TOWN.	Rate	NAME.	Rate
1—Bournemouth	·39	39—Walsall	1·83
2—Burton-on-Trent	·53	40—Gateshead	1·88
3—Hornsey	·66	41—St. Helen's	1·88
4—Hastings	·67	42—Walthamstow	1·89
5—Halifax	·72	43—Tottenham	1·90
6—King's Norton	·75	44—Grimsby	1·93
7—Handsworth	·77	45—Willesden	1·95
8—Brighton	·84	46—Wolverhampton	1·96
9—Huddersfield	·84	47—York	1·97
10—West Hartlepool	·84	48—Bolton	1·98
11—Barrow-in-Furness	·85	49—Coventry	1·99
12—Derby	·86	50—Nottingham	2·01
13—Devonport	·93	51—Stockport	2·08
14—Reading	·94	52—Bury	2·17
15—Bristol	1·07	53—Hull	2·19
16—Smethwick	1·08	54—Aston Manor	2·25
17—Croydon	1·09	55—Swansea	2·28
18—South Shields	1·09	56—Birmingham	2·31
19—Norwich	1·14	57—Oldham	2·33
20—Plymouth	1·16	58—Stockport	2·33
21—Newcastle-on-Tyne	1·22	59—West Bromwich	2·34
22—Wallasey	1·28	60—Sunderland	2·36
23—Stockton-on-Tees	1·29	61—**RHONDDA**	**2·45**
24—Cardiff	1·32	62—Liverpool	2·50
25—Southampton	1·32	63—Manchester	2·55
26—Rochdale	1·35	64—Great Yarmouth	2·59
27—Bradford	1·37	65—Merthyr Tydfil	2·65
28—Ipswich	1·41	66—West Ham	2·65
29—Tynemouth	1·42	67—Bootle	2·70
30—Leicester	1·44	68—Burnley	2·82
31—Blackburn	1·47	69—Salford	2·86
32—Portsmouth	1·49	70—Rotherham	2·92
33—Northampton	1·55	71—Middlesborough	2·97
34—East Ham	1·60	72—Hanley	3·07
35—Leyton	1·64	73—Sheffield	3·10
36—Leeds	1·74	74—Preston	3·11
37—Newport, Mon.	1·74	75—Warrington	3·28
38—London	1·77	76—Wigan	4·17

Table 14.

Showing the number of deaths in the Rhondda, from the principal Zymotic diseases since 1883.

YEAR	Small Pox	Measles	Scarlet Fever	Whooping Cough	Diphtheria	FEVERS.			Diarrhœa	Total Zymotic Deaths	Zymotic Death Rate	Average Zymotic Death Rate of ten years.
						Tyhpus	Enteric	Simple Contin'd				
1883	—	84	21	13	7	—	56	2	38	221	3·5	3·0
1884	—	5	116	29	15	—	55	1	64	285	4·4	
1885	—	59	44	46	19	—	38	1	21	228	3·3	
1886	—	150	93	24	13	—	49	—	38	367	5·1	
1887	1	15	33	5	20	—	28	—	31	133	1·7	
1888	—	20	16	2	27	—	23	—	17	105	1·3	
1889	—	72	18	24	20	—	20	—	52	206	2·5	
1890	—	19	52	65	29	—	20	—	29	214	2·5	
1891	—	49	89	17	17	—	25	—	38	335	3·7	
1892	—	44	43	19	20	—	32	—	46	204	2·2	
1893	1	43	23	12	30	—	91	1	85	286	3·0	3·5
1894	—	13	12	30	29	—	28	—	28	140	1·4	
1895	—	79	27	72	66	—	25	—	75	344	3·4	
1896	—	38	43	63	54	—	28	3	144	373	3·6	
1897	—	138	19	52	78	—	28	—	61	376	3·6	
1898	—	16	14	33	146	—	40	1	105	355	3·3	
1899	—	—	10	70	186	—	55	—	169	489	4·4	
1900	—	121	35	58	125	—	24	—	118	481	4·3	
1901	—	3	43	33	136	—	53	—	327	595	5·1	
1902	1	109	27	40	81	—	21	—	109	389	3·3	
1903	—	**8**	**38**	**52**	**42**	—	**44**	—	**109**	**293**	**2·4**	

Table 15—Comparing the Death-rates from Zymotic diseases during the years 1883—1903 in the Rhondda with similar diseases in England and Wales (per 1,000 living).

Year	Small-Pox		Measles		Scarlet Fever		Whooping Cough		Diphtheria		FEVERS						Diarrhœa		Tot'l Zymotic Deaths.	Zymotic Death-rate	
											Typhus		Enteric		Simple-*cntd*						
	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	England and Wales	Rhondda	Rhondda	England and Wales
1883	—	·04	1·36	·35	·34	·47	·21	·39	·11	·15	—	·03	.90	·23	·03	·04	·61	·60	221	3·5	2·3
1884	—	·08	·07	·42	1·79	·40	·44	·42	·23	·18	—	·01	·85	·24	·01	·03	·97	·98	285	4·4	2·8
1885	—	·10	·87	·53	·64	·23	·67	·48	·28	·16	—	·01	·56	·18	·01	·02	·31	·50	228	3·3	2·2
1886	—	·01	2·11	·44	1·31	·21	·33	·47	·18	·14	—	·01	·69	·18	—	·02	·53	·90	367	5·1	2·6
1887	·01	·02	·20	·60	·44	·28	·06	·40	·26	·16	—	·008	·37	·19	—	·02	·41	·73	133	1·7	2·7
1888	—	·04	·25	·35	·20	·22	·02	·43	·34	·17	—	·006	·29	·17	—	·01	·21	·45	105	1·3	2·1
1889	—	·001	·88	·52	·22	·23	·29	·43	·24	·18	—	·005	·24	·18	—	·01	·63	·65	206	2·5	2·4
1890	—	—	·22	·44	·60	·24	·76	·47	·33	·17	—	·005	·23	·18	—	·01	·33	·60	214	2·5	2·5
1891	—	·002	·54	·44	·99	·17	·19	·47	·19	·17	—	·005	·27	·17	—	·01	·42	·47	235	3·7	2·7
1892	—	·01	·48	·46	·47	·19	·20	·45	·21	·22	—	·003	·35	·14	—	·008	·50	·50	204	2·2	2·7
1893	·01	·05	·45	·37	·24	·23	·12	·34	·32	·31	—	·005	·97	·23	·01	·009	·90	·95	286	3·0	3·1
1894	—	·03	·13	·39	·12	·16	·31	·41	·30	·29	—	·004	·29	·16	—	·007	·29	·35	140	1·4	2·2
1895	—	·007	·80	·38	·27	·15	·73	·31	·67	·26	—	·002	·25	·18	—	·005	·76	·87	344	3·4	2·8
1896	—	·02	·37	·57	·42	·18	·62	·43	·53	·29	—	·002	·27	·17	·02	·005	1·42	·55	373	3·6	2·5
1897	—	—	1·33	·10	·18	·14	·50	·31	·75	·24	—	—	·27	·15	—	—	·58	·85	376	3·6	2·1
1898	—	·01	·15	·41	·13	·11	·31	·31	1·37	·24	—	—	·37	·18	·009	—	·98	·96	355	3·3	2·2
1899	—	·01	—	·31	·09	·12	·64	·30	1·70	·29	—	—	.50	·20	—	—	1·55	·98	489	4·4	2·2
1900	—	·01	1·09	·39	·31	·12	·51	·34	1·12	·29	—	—	·21	·17	—	—	1·05	·69	481	4·3	2·0
1901	—	·01	·02	·27	·37	·13	·28	·30	1·18	·27	—	—	·46	·17	—	—	2·85	·91	595	5·2	2·0
1902	·003	·08	·90	·38	·23	·15	·34	·29	·69	·23	—	—	·18	·13	—	—	·93	·38	389	3·3	1·64
1903	—	·02	**·06**	·27	**·31**	·12	**·43**	·27	**·35**	·18	—	—	**·36**	·10	—	—	**·91**	·50	**293**	**2·4**	1·46

Table 16.

Actual number of Deaths from various causes in the separate Wards.

WARDS.	Population	All Causes.	Zymotic.	Small Pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria	Typhoid Fever.	Diarrhœa.
1	9,921	152	6	—	—	1	1	1	—	3
2	11,703	193	35	—	—	—	—	1	2	32
3	10,649	188	26	—	—	1	6	13	—	6
4	9,767	166	34	—	—	3	13	4	2	12
5	12,324	218	27	—	1	3	9	4	—	10
6	10,371	170	27	—	1	10	3	3	2	8
7	10,069	175	33	—	—	9	6	4	6	8
8	15,841	262	58	—	6	4	6	8	27	7
9	13,899	218	17	—	—	4	2	4	3	4
10	14,847	256	30	—	—	3	6	—	2	19
RHONDDA	**119,391**	**1,998**	**293**	—	**8**	**38**	**52**	**42**	**44**	**109**

Table 17.

The death-rate per 1,000 from All Causes and from the principal Zymotic Diseases in the 10 Wards in 1903.

Wards.	All Causes.	Zymotic.	Small Pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diptheria.	Typhoid Fever.	Diarrhœa and Epidemic Enteritis.
1	15·3	·6	—	—	·1	·1	·1	—	·3
2	16·4	2·9	—	—	—	—	·08	·1	2·7
3	17·6	2·4	—	—	·09	·5	1·2	—	·5
4	16·9	3·4	—	—	·3	1·3	·4	·2	1·2
5	17·6	2.1	—	·08	·2	·7	·3	—	·8
6	16·3	2·6	—	·09	·9	·2	·2	·1	·7
7	17.3	3·2	—	—	·8	·5	·3	·5	·7
8	16·5	3·6	—	·3	·2	·3	·5	1·7	·4
9	15·6	1·2	—	—	·2	·1	·2	·2	·2
10	17·2	2·0	—	—	·2	·4	—	·1	1·2
RHONDDA ...	**16 ·7**	**2·4**	—	**·06**	**·3**	**·4**	**·3**	**·3**	**·9**

Table 18.

Particulars as to the number of Occupants in Scarlet Fever infected houses in 1903.

Wards No.	Number of Houses	Number of Houses Letting Lodgings	Number of Occupants			Persons per House
			Occupiers.	Lodgers	Total	
1	17	7	101	15	116	6·8
2	24	11	115	30	145	6·0
3	10	7	56	15	71	7·1
4	54	26	308	79	387	7·1
5	54	40	319	136	455	8·4
6	90	58	477	124	601	6·6
7	113	61	620	167	787	6·9
8	85	42	469	102	571	6·7
9	121	59	668	141	809	6·6
10	103	57	545	129	674	6·5
Rhondda	**671**	**368**	**3678**	**938**	**4616**	**6·8**

Table 19.

Ages of those attacked with Scarlet Fever in the Rhondda during 1903, with case death-rate.

	Under 1 year.	1 to 2 years.	2 to 3 years.	3 to 4 years.	4 to 5 years.	5 to 6 years.	6 to 15 years.	15 to 25 years.	25 years and upwards	All Ages.
Cases ...	27	63	101	100	88	97	311	64	21	872
Deaths	4	7	8	2	5	3	3	4	2	38
Per cent. of Deaths to Cases	14·8	11·1	7·9	2·0	5·6	3·0	·9	6·2	9·5	4·3

Table 20.

Number of cases and deaths from Scarlet Fever in the Rhondda, with case mortality in the ten years 1894—1903.

Year.		No. of cases notified.		No. of Deaths.		Mortality per cent. of cases.
1894	...	441	...	12	...	2·7
1895	...	704	...	27	...	3·8
1896	...	973	...	43	...	4·4
1897	...	574	...	19	...	3.1
1898	...	408	...	14	...	3·4
1899	...	534	...	10	...	1·8
1900	...	1828	...	35	...	1·9
1901	...	1393	...	43	...	3·0
1902	...	833	...	27	...	3·2
1903	...	**872**	...	**38**	...	**4·3**

Table 21.

At the end of December there were 68 cases of Scarlet Fever in 55 houses, distributed as follow :—

	Cases.	Houses.
Ward No. 1	2	2
,, ,, 2	1	1
,, ,, 3	3	3
,, ,, 4	6	4
,, ,, 5	2	1
,, ,, 6	9	8
,, ,, 7	16	12
,, ,, 8	13	10
,, ,, 9	4	3
,, ,, 10	12	11
RHONDDA	**68**	**55**

Table 22.

Showing the seasonal incidence of Scarlet Fever in the Rhondda during 1903.

MONTH.	Cases Notified.		MONTH.	Cases Notified.	
	Total Number.	Primary Cases.		Total Number.	Primary Cases.
January	68	57	July	112	94
February	82	62	August	68	52
March	95	70	September	61	43
April	63	45	October	58	44
May	69	53	November	67	49
June	81	65	December	48	37
	458	352		414	319

Table 23.

Scarlet Fever Notifications 1908, and Ages of those attacked.

WARDS	Under 1 year.	1 to 2 years	2 to 3 years.	3 to 4 years.	4 to 5 years.	5 to 6 years.	6 to 15 years.	15 to 25 years.	25 years and upwards	Total.
No. 1 ...	2	1	2	2	1	2	10	1	—	21
,, 2 ...	1	4	4	3	5	—	6	3	—	26
,, 3 ...	2	—	—	—	2	1	5	1	—	11
,, 4 ..	2	7	7	5	10	4	21	13	3	72
,, 5	—	3	17	12	4	12	22	3	—	73
,, 6 ...	2	7	15	14	11	14	43	8	3	117
,, 7 ...	6	8	20	18	14	14	59	9	9	157
,, 8 ..	4	6	7	15	14	18	41	8	1	114
,, 9 ..	5	10	15	14	11	19	68	11	4	157
,, 10 ...	3	17	14	17	16	13	36	7	1	124
Rhondda ..	**27**	**63**	**101**	**100**	**88**	**97**	**311**	**64**	**21**	**872**

Table 24.

Scarlet Fever cases in the Rhondda during 1903.

WARDS.	Total Fresh Cases.	Newly Infected Houses.	AGES OF FIRST ATTACKED.				Attending no School.
			Under 3 years.	3 to 5.	5 to 12.	12 years and upwards	
Ward No. 1 ..	21	17	3	3	10	1	6
,, ,, 2 ..	26	24	8	8	5	3	13
,, ,, 3 .	11	10	2	2	5	1	3
,, ,, 4 ..	72	54	12	10	19	13	28
,, ,, 5 ..	73	54	16	11	25	2	27
,, ,, 6 ..	117	90	17	22	39	12	38
,, ,, 7	157	113	22	23	52	16	45
,, ,, 8 ..	114	85	9	18	48	10	27
,, ,, 9 ..	157	121	25	18	62	16	45
,, ,, 10 .	124	103	28	23	43	9	48
Rhondda ..	**872**	**671**	**142**	**138**	**303**	**83**	**280**

Table 25.

Scarlet Fever Notifications.

WARDS.	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
No. 1 ...	86	152	46	82	35	12	63	147	72	21
,, 2 ..	86	67	40	136	94	56	158	145	33	26
,, 3 ...	79	89	24	82	77	23	158	66	92	11
,, 4 ...	69	122	90	44	64	12	228	210	46	72
,, 5 ...	2	85	200	74	5	26	402	116	22	73
,, 6 ...	8	25	203	29	12	13	242	79	21	117
,, 7 ..	28	61	76	11	6	25	129	120	39	157
,, 8 ..	47	22	202	65	40	47	91	106	241	114
,, 9 ...	23	57	86	26	53	224	91	213	94	157
,, 10 ...	13	24	6	25	22	96	266	191	173	124
Rhondda	**441**	**704**	**973**	**574**	**408**	**534**	**1828**	**1393**	**833**	**872**

Table 26.—Scarlet Fever Cases notified each month in the respective Wards in the Rhondda during 1903.

WARDS	1		2		3		4		5		6		7		8		9		10		MONTHLY TOTAL.	
CASES.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.
January .. .	1	1	1	1	4	4	1	1	—	—	—	—	8	8	25	18	9	8	19	16	**68**	**57**
February	1	1	6	5	1	—	2	2	4	3	4	3	3	3	6	2	50	38	5	5	**82**	**62**
March	3	2	4	3	—	—	14	10	9	6	4	1	12	9	8	7	28	20	13	12	**95**	**70**
April	2	1	1	1	—	—	4	4	8	5	3	2	10	8	5	3	5	4	25	17	**63**	**45**
May	4	3	2	2	—	—	17	14	11	8	5	3	7	5	2	1	14	10	7	7	**69**	**53**
June	2	2	—	—	1	1	9	7	7	5	25	23	13	9	12	9	3	2	9	7	**81**	**65**
July	1	1	3	3	—	—	3	3	14	13	27	23	18	10	15	13	15	14	16	14	**112**	**94**
August	—	—	2	2	—	—	2	1	8	6	16	11	11	8	3	3	19	14	7	7	**68**	**52**
September	—	—	—	—	—	—	5	2	9	6	10	7	25	18	5	5	3	3	4	2	**61**	**43**
October	2	2	2	2	2	2	7	4	1	1	4	3	22	15	7	7	6	4	5	4	**58**	**44**
November	3	2	5	5	1	1	3	3	—	—	14	9	18	13	19	13	2	2	2	1	**67**	**49**
December	2	2	—	—	2	2	5	3	2	1	5	5	10	7	7	4	3	2	12	11	**48**	**37**
RHONDDA	**21**	**17**	**26**	**24**	**11**	**10**	**72**	**54**	**73**	**54**	**117**	**90**	**157**	**113**	**114**	**85**	**157**	**121**	**124**	**103**	**872**	**671**

Table 27.

Details of Inspected Houses in which Infectious Disease occurred during 1903.

WARDS No.	Number of Houses.	Number of Houses Letting Lodgings	Number of Occupants.			Persons per House.
			Occupiers.	Lodgers.	Total.	
1	53	17	308	36	344	6·4
2	72	34	386	76	462	6·4
3	105	60	559	143	702	6·6
4	99	53	528	128	656	6·6
5	82	57	495	181	676	8·2
6	114	74	600	160	760	6·6
7	161	83	874	226	1100	6·8
8	257	140	1353	345	1698	6·6
9	169	82	938	203	1141	6·7
10	167	89	902	199	1101	6·5
RHONDDA	**1,279**	**689**	**6,943**	**1,697**	**8,640**	**6·7**

Table 28.

Showing the number of cases of the notifiable Zymotic Diseases in the Rhondda since compulsory notification was adopted in 1894.

Year.	Cases.
1894	635
1895	933
1896	1,241
1897	1,031
1898	1,652
1899	2,700
1900	3,214
1901	3,039
1902	1,879
1903	**1,597**

Table 29.

Particulars as to the number of Occupants in Diphtheria infected houses during 1903.

WARDS.	Number of Houses	Number of Houses Letting Lodgings.	Number of Occupants.			Persons per House.
			Occupiers	Lodgers.	Total.	
No. 1	19	7	115	15	130	6·8
2	34	12	198	27	225	6·6
3	78	44	422	101	523	6·7
4	30	20	154	37	191	6·3
5	17	13	107	33	140	8·2
6	12	7	66	15	81	6·7
7	14	8	75	28	103	7·3
8	44	26	233	58	291	6·6
9	23	11	124	26	150	6·5
10	15	7	85	18	103	6·8
Rhondda	**286**	**155**	**1,579**	**358**	**1,937**	**6·7**

Table 30.

Diphtheria Notifications 1903, and Ages of those attacked.

WARDS.	Under 1 Year.	1 to 2 Years.	2 to 3 Years.	3 to 4 Years.	4 to 5 Years.	5 to 6 Years.	6 to 15 Years.	15 to 25 Years.	25 Years. and Upwards.	TOTAL.
1	2	2	1	—	1	4	7	2	1	20
2	1	2	5	7	3	8	9	1	—	36
3	5	7	15	11	11	10	27	3	3	92
4	1	3	1	4	5	3	15	2	8	42
5	—	1	4	1	1	3	6	2	1	19
6	—	—	1	3	—	2	4	5	1	16
7	1	3	—	—	—	2	7	1	2	16
8	2	2	3	3	6	6	20	2	3	47
9	—	4	3	2	—	3	10	2	—	24
10	—	1	1	1	2	—	7	3	—	15
RHONDDA	**12**	**25**	**34**	**32**	**29**	**41**	**112**	**23**	**19**	**327**

Table 31.

Diphtheria Cases in the Rhondda during 1903.

WARDS.	Total Fresh Cases.	Newly Infected Cases.	Ages of First Attacked.				Attending no School.
			Under 3 years.	3 to 5.	5 to 12.	12 years and upwards	
No. 1 ...	20	19	5	—	10	4	8
,, 2 ..	36	34	8	8	16	2	16
,, 3 ...	92	78	23	19	30	6	40
,, 4 ..	42	30	5	7	5	13	15
,, 5 ...	19	17	5	2	7	3	9
,, 6 ...	16	12	1	2	4	5	7
,, 7 ...	16	14	3	—	9	2	5
,, 8 ...	47	44	6	8	22	8	15
,, 9 ..	24	23	7	2	10	4	9
,, 10 ..	15	15	2	3	5	5	6
RHONDDA ...	**327**	**286**	**65**	**51**	**118**	**52**	**130**

Table 32.

The number of Cases notified and Deaths registered from Diphtheria in the Rhondda during each month in 1898, 1899, 1900, 1901, 1902, and 1903.

MONTHS.	1898		1899		1900		1901		1902		1903	
	Cases	De'ths	Cases	De'ths	Cases	De'ths	Cases	De'ths	Cases	De'ths	Cases	De'ths
January ...	45	15	177	15	138	22	78	10	80	5	47	**4**
February ..	48	8	199	13	79	8	48	9	68	3	31	**3**
March ..	34	5	204	18	61	9	90	14	93	6	28	**3**
April ...	24	2	89	15	40	5	73	13	97	10	34	**7**
May ...	15	2	191	22	73	8	75	8	55	1	20	**3**
June ..	10	5	176	19	93	10	170	13	58	8	23	**2**
July .	19	3	232	17	168	15	145	16	67	17	24	**4**
August .	23	6	112	13	89	9	67	10	35	5	19	**3**
September ..	126	31	95	17	104	9	114	9	25	2	10	**1**
October ..	124	31	108	10	88	11	99	11	47	3	19	**1**
November ..	190	22	115	14	98	13	94	11	61	10	30	**6**
December ...	225	28	106	13	71	6	75	11	71	11	42	**5**
Total ...	883	146	1804	186	1102	125	1128	135	757	81	327	**42**

Table 33.

Ages of those attacked with Diphtheria in the Rhondda during 1903, with case death-rate.

	Under 1 Year.	1 to 2 Years.	2 to 3 Years.	3 to 4 Years.	4 to 5 Years.	5 to 6 Years.	6 to 15 Years.	15 to 25 Years.	25 to 65 Years.	All Ages.
Cases	12	25	34	32	29	41	112	23	19	327
Deaths	2	12	6	5	8	1	6	—	2	42
Per cent of deaths to cases	16·6	48·0	17·6	15·6	27.5	2·4	5·3	—	10·5	12·8

Table 34.

Diphtheria Notifications in the Rhondda.

WARDS.	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
Ward No. 1	13	21	3	16	24	12	13	20	22	20
Ward No. 2	5	4	8	68	92	59	96	135	174	36
Ward No. 3	1	4	—	41	6	8	126	63	74	92
Ward No. 4	—	6	12	20	22	4	119	292	100	42
Ward No. 5	4	6	14	8	1	123	93	78	14	19
Ward No. 6	—	—	12	21	139	177	28	71	8	16
Ward No. 7	1	—	—	17	22	110	34	24	17	16
Ward No. 8	3	14	7	16	348	803	195	151	98	47
Ward No. 9	2	4	3	26	129	283	91	63	79	24
Ward No. 10... ...	—	7	20	14	100	225	307	231	171	15
Totals	29	66	79	247	883	1804	1102	1128	757	327
Deaths	29	66	54	78	146	186	125	135	81	42
Per cent of Deaths to Cases	100	100	68·3	31·5	16·8	10·3	11·3	11·9	10·7	12·8

Table 35.—Diphtheria cases notified each month in the respective Wards in the Rhondda during 1903.

WARDS	1		2		3		4		5		6		7		8		9		10		MONTHLY TOTAL.	
CASES.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.
January .. .	3	3	6	6	17	12	5	4	—	—	—	—	—	—	9	9	3	3	4	4	**47**	**41**
February	1	1	7	7	8	6	2	2	—	—	—	—	2	2	4	4	4	4	3	3	**31**	**29**
March	1	1	3	3	6	6	3	3	2	1	—	—	—	—	9	8	3	3	1	1	**28**	**26**
April	—	—	1	1	4	2	1	1	7	6	3	2	—	—	13	11	4	4	1	1	**34**	**28**
May	—	—	2	2	7	7	1	1	1	1	1	1	1	1	5	5	1	1	1	1	**20**	**20**
June	1	1	—	—	5	5	4	2	4	4	1	1	1	1	2	2	4	4	1	1	**23**	**21**
July	1	1	3	3	6	6	3	1	1	1	—	—	4	3	2	2	2	2	2	2	**24**	**21**
August	1	1	2	1	9	8	—	—	3	3	2	2	—	—	1	1	1	1	—	—	**19**	**17**
September	1	—	1	1	2	2	2	2	1	1	1	1	—	—	—	—	2	1	—	—	**10**	**8**
October	1	1	3	3	9	9	3	1	—	—	1	1	1	1	1	1	—	—	—	—	**19**	**17**
November	2	2	3	3	7	6	11	9	—	—	5	3	1	1	1	1	—	—	—	—	**30**	**25**
December	8	8	5	4	12	9	7	4	—	—	2	1	6	5	—	—	—	—	2	2	**42**	**33**
RHONDDA	**20**	**19**	**36**	**34**	**92**	**78**	**42**	**30**	**19**	**17**	**16**	**12**	**16**	**14**	**47**	**44**	**24**	**23**	**15**	**15**	**327**	**286**

Table 36.

Typhoid Fever Notifications.

WARDS.	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
Ward No. 1 ...	5	21	17	17	13	17	19	70	22	19
,, 2 ...	4	8	10	55	13	17	14	40	1	7
,, 3 ...	11	3	6	1	25	5	13	37	4	1
,, 4 ...	10	42	8	8	87	39	16	39	20	9
,, 5 ...	38	34	21	31	23	19	14	19	10	7
,, 6 ...	10	12	17	15	34	16	6	4	3	4
,, 7 ...	12	4	15	19	17	25	3	12	16	33
,, 8 ...	7	7	23	37	86	50	27	28	9	175
,, 9 ...	40	13	30	19	43	115	42	22	13	9
,, 10 ...	18	9	6	8	20	59	18	37	19	11
RHONDDA ...	**155**	**153**	**153**	**210**	**361**	**362**	**172**	**308**	**117**	**275**

Table 37.

The Seasonal Distribution of Typhoid Fever was as follows :—

	CASES NOTIFIED.	
	Total.	Primary Cases.
January	6	4
February	7	7
March	69	51
April	57	40
May	36	20
June	24	14
July	11	9
August	4	3
September	29	26
October	21	18
November	7	4
December	4	3
Whole Year	**275**	**199**

Table 38.

Typhoid Fever in the Rhondda 1903. Ages of those attacked with case death-rate.

	Under 1 Year.	1 to 5 Years.	5 to 15 Years.	15 to 25 Years.	25 to 65 Years.	65 Years and Upwards	All Ages.
Cases	—	28	93	76	78	—	275
Deaths	—	2	8	15	19	—	44
Percentage of Deaths to Cases	—	7·1	8·6	19·7	24·3	—	16

Table 39.

Showing the number of cases of Typhoid Fever, the number of Deaths, and the case mortality since 1894.

Year.		No. of cases notified.		No. of Deaths.		Mortality per cent. of cases.
1894	...	155	...	28	...	18·0
1895	...	153	...	25	..	16·0
1896	...	153	...	28	...	18·0
1897	...	210	...	28	...	13.0
1898	...	361	...	40	...	11·0
1899	...	362	...	55	...	15·0
1900	...	172	...	24	...	13·9
1901	...	308	...	53	...	16·8
1902	...	117	...	22	...	18·8
1903	...	**275**	...	**44**	...	**16·0**

Table 40.

Particulars as to the number of Occupants in Typhoid Fever infected houses during 1903.

Wards No.	Number of Houses	Number of Houses Letting Lodgings	Number of Occupants			Persons per House
			Occupiers.	Lodgers	Total	
1	13	1	66	2	68	5·2
2	7	5	30	13	43	6·1
3	1	—	7	—	7	7·0
4	5	2	27	3	30	6·0
5	6	2	43	3	46	7·6
6	4	3	17	4	21	5·2
7	31	14	165	31	196	6·3
8	116	69	608	160	768	6·6
9	7	—	49	—	49	7·0
10	9	4	49	8	57	6·3
Rhondda	**199**	**100**	**1061**	**224**	**1285**	**6·4**

Table 41.

Typhoid Fever Notifications, 1903, and Ages of those attacked.

Wards.	Under 1 year.	1 to 2 years.	2 to 3 years.	3 to 4 years.	4 to 5 years.	5 to 6 years.	6 to 15 years.	15 to 25 years.	25 years and upwards	Total.
No. 1 ..	—	—	—	—	1	2	9	2	5	19
,, 2 ...	—	—	—	—	—	—	2	3	2	7
,, 3 ...	—	—	—	—	—	—	1	—	—	1
,, 4 ...	—	—	—	—	—	—	3	4	2	9
,, 5 ...	—	—	—	—	1	1	1	2	2	7
,, 6 ..	—	—	—	—	—	—	—	—	4	4
,, 7 ...	—	—	—	—	—	—	11	7	15	33
,, 8 ...	—	4	3	6	10	4	54	50	44	175
,, 9 ..	—	—	—	—	—	1	3	3	2	9
,, 10 ..	—	1	—	2	—	—	1	5	2	11
Rhondda	—	**5**	**3**	**8**	**12**	**8**	**85**	**76**	**78**	**275**

Table 42.—Typhoid Fever cases notified each month in the respective Wards in the Rhondda during 1903.

WARDS.	1		2		3		4		5		6		7		8		9		10		MONTHLY TOTAL.	
CASES.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases	Cases Notified	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases.	Cases Notified.	Primary Cases.
January	4	2	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	**6**	**4**
February	2	2	1	1	1	1	—	—	1	1	—	—	1	1	—	—	1	1	—	—	**7**	**7**
March	—	—	—	—	—	—	1	1	—	—	1	1	2	2	65	47	—	—	—	—	**69**	**51**
April	—	—	—	—	—	—	—	—	1	1	—	—	2	2	52	35	2	2	—	—	**57**	**40**
May	4	3	2	2	—	—	—	—	—	—	—	—	2	2	26	13	2	—	—	—	**36**	**20**
June	1	1	—	—	—	—	1	1	—	—	—	—	2	2	20	10	—	—	—	—	**24**	**14**
July	—	—	2	2	—	—	—	—	2	1	—	—	2	2	5	4	—	—	—	—	**11**	**9**
August	1	1	—	—	—	—	2	1	—	—	—	—	1	1	—	—	—	—	—	—	**4**	**3**
September	1	1	1	1	—	—	4	1	2	2	2	2	12	12	5	5	—	—	2	2	**29**	**26**
October	2	2	—	—	—	—	1	1	—	—	1	1	6	5	2	2	1	1	8	6	**21**	**18**
November	3	1	—	—	—	—	—	—	1	1	—	—	1	—	—	—	2	2	—	—	**7**	**4**
December	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	**4**	**3**
RHONDDA	**19**	**13**	**7**	**7**	**1**	**1**	**9**	**5**	**7**	**6**	**4**	**4**	**33**	**31**	**175**	**116**	**9**	**7**	**11**	**9**	**275**	**199**

Table 43.

Deaths from Diarrhœa in the Third Quarter of 1903, together with the Rainfall and Earth Temperature at a depth of four feet.

	JULY.				AUGUST.					SEPTEMBER.				Total for Three Months.
Week ending	11	18	25	Aug. 1	8	15	22	29	Sept. 5	12	19	26	Oct. 3	
Rainfall in inches	·26	·73	2·18	·68	·89	4·45	3·26	1·86	2·34	2·74	0·00	1·28	3·27	23·94
Mean Temperature 4 feet deep ...	55	57	56	57	57	56	56	55	56	55	55	54	54	
Ward No. 1	—	—	—	—	—	—	—	—	—	—	1	—	—	1
,, 2	—	1	—	2	5	2	5	2	—	1	1	1	—	20
,, 3	—	—	—	—	—	1	1	1	1	—	1	—	1	6
,, 4	1	—	1	—	1	—	—	1	1	2	—	1	—	8
,, 5	—	—	1	—	1	1	—	1	—	2	—	—	—	6
,, 6	—	—	1	1	—	—	—	—	1	1	1	—	—	5
,, 7	—	—	—	—	1	—	—	—	1	2	—	—	1	5
,, 8	—	—	—	—	—	—	—	1	1	—	—	—	—	2
,, 9	—	—	—	—	—	—	—	—	1	—	—	—	—	1
,, 10	—	—	1	4	—	—	—	2	1	2	3	—	—	13
Rhondda	**1**	**1**	**4**	**7**	**8**	**4**	**6**	**8**	**7**	**10**			**2**	**67**

Table 44.

Puerperal Fever Notifications.

WARDS.	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
No. 1 ...	4	2	1	1	—	—	—	4	6	—
No. 2 ...	2	2	3	1	—	3	2	3	4	2
No. 3 ...	—	—	1	—	—	1	—	2	—	3
No. 4 ...	—	4	—	—	—	—	—	—	3	1
No. 5 ..	8	6	7	4	2	5	4	1	7	1
No. 6 ...	1	1	5	4	5	4	3	6	4	1
No. 7 ...	—	—	2	1	6	3	1	6	2	2
No. 8 ...	1	2	2	4	3	4	2	2	—	2
No. 9 ...	1	2	—	—	4	1	1	2	10	7
No. 10 ...	—	1	—	1	1	2	6	2	7	2
Rhondda ..	**17**	**20**	**21**	**16**	**21**	**23**	**19**	**28**	**43**	**21**

Table 45.

Showing the death-rates and the number of deaths from Puerperal Fever in the Rhondda during the years 1883-1903.

Year	Number of Deaths.	Death-rate per 1,000.	Average of 10 years.
1883	9	·14	1·9
1884	27	.41	
1885	21	·31	
1886	8	·11	
1887	14	·18	
1888	13	·16	
1889	6	·07	
1890	11	·12	
1891	24	·26	
1892	15	·16	
1893	20	·21	1·4
1894	17	·17	
1895	12	·12	
1896	21	·20	
1897	10	·09	
1898	4	·03	
1899	16	·14	
1900	9	·08	
1901	21	·18	
1902	23	·19	
1903	**11**	**·09**	

Table 46.

The following Table gives the occupation (if any) and the number of adults who died from Consumption during the year.

Carpenter	1
Charwoman	1
Colliers	26
Colliery Blacksmith	1
Colliery Clerk	1
Contractor	1
Domestic Servant	1
Dressmaker	1
Labourer	1
Milliner	1
Retired Grocer	1
Stone Mason	1
Student	1
Travellers	2
	40

Table 47

Showing the death-rates and the actual number of deaths from Phthisis in the Rhondda during the years 1883-1903.

Year	Number of Deaths.	Death-Rate per 1,000.	Average of 10 years.
1883	69	1·11	1·09
1884	72	1·11	
1885	80	1·18	
1886	81	1·14	
1887	82	1·10	
1888	88	1·13	
1889	102	1·25	
1890	84	·98	
1891	95	1·06	
1892	85	·93	
1893	77	·82	·88
1894	90	·93	
1895	82	·83	
1896	89	·88	
1897	108	1·04	
1898	103	·97	
1899	94	·86	
1900	83	·74	
1901	107	·93	
1902	99	·84	
1903	**90**	**·75**	

Table 48.

Causes of death as recorded at Coroner's Inquests.

	1897	1898	1899	1900	1901	1902	1903
Accidents in Collieries	44	42	61	43	63	44	59
Alcoholism	—	1	2	1	1	—	—
Aneurism	—	1	1	1	—	—	—
Apoplexy	—	1	3	3	3	2	4
Blood Poisoning	1	1	—	1	—	—	2
Burns	11	6	12	6	14	13	7
Convulsions	14	13	10	8	10	10	10
Crushed by Wheel	—	—	—	1	—	—	1
Diarrhœa	—	1	—	—	—	—	—
Drowning	4	3	2	5	6	2	4
Embolism	—	1	1	—	—	—	—
Exposure	—	1	1	—	—	1	1
Falls	10	3	3	7	3	9	8
Fall from Bridge	—	—	3	—	—	—	—
Found Dead	1	—	—	1	3	1	1
Fracture of Spine	1	1	—	—	—	—	—
Heart Disease	7	15	11	6	7	11	10
Hæmorrhage	1	—	—	—	—	—	—
Hernia	1	1	—	—	—	—	—
Homicide	—	1	—	—	—	—	—
Injudicious Feeding	1	—	—	1	—	—	—
Injury (character not stated)	—	—	1	—	3	—	—
Injury to Head	1	—	—	1	5	1	1
Kick of Horse	1	1	—	—	—	—	1
Malnutrition	—	—	1	—	—	—	—
Manslaughter	2	—	1	—	1	1	1
Misadventure	—	1	2	—	—	—	—
Murder	—	—	—	—	—	1	—
Natural Causes	—	2	3	3	1	5	3
Not Known	1	—	—	—	—	—	—
Old Age	—	—	—	1	—	—	—
Overlain	2	1	—	4	2	—	—
Perforation of Stomach	—	—	1	—	—	—	—
Poisoning (Ptomaine)	1	—	—	—	—	—	—
Run over by Cart	1	3	1	3	1	1	4
Run over by Train	6	2	3	2	2	1	2
Run over by Tram	—	—	1	—	3	—	—
Scalds	8	3	6	8	11	6	4
Scarlet Fever	—	—	—	1	—	—	—
Starvation	—	—	—	—	—	1	—
Strain	1	—	—	—	—	—	—
Suffocation	1	3	1	—	3	2	4
Suicide	4	1	3	2	1	2	1
Syncope	1	1	1	7	2	1	5
Tumour	1	1	—	—	—	—	—
Want of proper attention at birth	1	1	—	—	—	—	—
Rhondda	**128**	**112**	**135**	**117**	**148**	**115**	**133**

Table 49.

New Houses. Plans passed.

Year.	Houses.	Shops.	Hotels.	Churches and Chapels.
1889	372	20	3	1
1890	829	17	2	6
1891	1187	27	2	6
1892	883	25	1	3
1893	768	26	2	2
1894	1317	39	—	6
1895	544	18	—	5
1896	459	26	1	3
1897	425	10	2	6
1898	156	22	2	3
1899	159	29	6	3
1900	345	16	2	2
1901	451	12	—	6
1902	849	14	—	9
1903	1036	21	1	6

During 1903, there were passed for occupation 483 buildings.

Table 50.

Summary of Inspector's Work, 1903.

DISTRICT.	1	2	3	4	5	6
Accumulation of Refuse ...	44	4	25	34	22	48
Accumulation of Manure ...	29	3	30	26	15	10
Blocked Drain	147	60	84	89	133	72
Blocked W.C.	58	25	69	151	102	113
Defective Drain	35	16	23	61	36	55
Lip Trap to Gully Trap ..	35	33	36	37	27	49
Unventilated Drain ...	6	3	—	31	2	15
Defective Ventilating Pipe ...	8	1	3	10	1	4
Waste Pipe Direct ...	1	—	—	—	1	—
No Water in W.C. ...	59	16	77	31	28	24
Dilapidated or Filthy W.C. ...	81	46	104	59	62	130
No W.C.	—	—	1	16	—	—
Dilapidated back area ...	294	56	87	22	41	57
Defective or no Rain Water Shoots	154	36	118	71	46	140
Dirty Houses	9	7	6	15	2	19
Overcrowding	13	1	2	20	20	28
Animals as a Nuisance ..	36	—	12	15	27	25
Privy to W.C.	—	—	2	4	2	—
Other Nuisances	16	12	26	36	38	69

Table 51.

Summary of District Inspectors' work during 1903, as reported to the M.O.H. each week.

District.	1	2	3	4	5	6
Cases of Infectious Disease Investigated ...	135	236	224	281	424	242
Re-visits to						
Infected houses ...	980	1454	1349	1417	2552	1518
Drain Connections ...	190	300	179	317	217	128
Slaughter-houses ...	151	193	296	160	115	150
Lodging-houses ...	—	42	—	39	—	—
Bake-houses ...	298	177	245	220	354	265
Dairies	90	74	140	165	—	107
House to House ..	2877	1975	3068	3088	2499	3140
New Buildings Visited ...	777	576	565	495	547	835
Special Complaints ...	6	65	77	14	15	35
Letters sent by Inspectors	561	367	524	445	395	502
Ditto referred to M.O.H...	61	22	53	52	16	4
Ditto ditto to Council...	25	21	50	53	55	43
New Buildings Certified ...	93	70	82	61	54	71
No. of Connections made	31	25	21	23	43	9
No. of Houses Connected	99	56	59	103	98	40
Total No. of do. . .	3487	3437	3461	2758	3243	3228
Do. Unconnected ..	267	80	75	155	129	55
Fines—						
Without Brushes ..	2/6	15/-	—	—	—	—
Without Bell ...	15/-	12/6	—	2/6	—	—
Neglecting Lanes ...	£1	—	5/-	5/-	10/-	£1/5/-
Without Cover ...	2/6	15/-	—	—	£2/2/6	£3/10/-
Scavenging after 10 p.m.	5/-	—	7/6	2/6	5/-	£1/-/-
Depositing on Unauthorised Ground	2/6	—	5/-	15/-	£6/5/-	—
Failing to send out Cart..	—	—	5/-	—	—	—
Leaving depôt gate unlocked	—	—	—	10/6	—	—

Table 52.

Workshops and Workplaces in the Rhondda in each Inspector's District.

	1	2	3	4	5	6	TOTAL
Boot Makers	24	20	27	15	17	9	112
Bakers	35	29	27	20	24	21	156
Blacksmiths	2	4	4	2	6	—	18
Barbers	12	17	17	14	15	15	90
Basket Makers	—	—	1	—	—	—	1
Carpenters	8	13	7	10	8	6	52
Fried Fish Shops	11	13	7	7	6	12	56
Coachmakers	1	3	1	1	2	1	9
Confectioners	—	—	—	1	—	—	1
Cycle Repairers	1	3	2	—	2	1	9
Dressmakers	57	22	30	7	25	57	198
Dressmakers & Milliners, combined	1	—	—	—	3	2	6
Glaziers	—	—	2	2	—	—	4
Jewellers	3	6	7	2	4	5	27
Milliners	18	14	14	8	10	9	73
Knitters	1	—	—	—	—	—	1
Picture Framers	3	2	2	—	1	—	8
Printers	2	1	—	—	—	—	3
Plumbers	—	3	2	2	—	—	7
Saddlers	2	1	2	2	2	1	10
Monumental Masons	2	—	1	3	1	—	7
Sewing Machine Fitters ...	—	1	—	—	—	—	1
Sweet Makers	—	—	1	—	—	—	1
Tailors	18	19	12	8	11	8	76
Tinmen	—	—	1	2	1	—	4
Quarries	—	8	7	—	—	—	15
Total	201	179	174	106	138	147	945

Table 53.

Premises requiring periodical inspections.

DISTRICT	1	2	3	4	5	6	Whole District
Bakehouses	35	29	27	20	24	21	156
Cowsheds	42	40	22	29	18	19	170
Dairies & Milkshops	40	44	30	33	27	24	198
Lodging-houses	—	—	—	1	—	—	1
Slaughterhouses	10	5	13	6	5	4	43
Offensive Trades	—	1	1	—	—	—	2

Table I.

Vital Statistics of Whole District during 1903 and previous years.

Rhondda Urban District.

Year.	Population estimated to middle of each year.	BIRTHS.		Total Deaths registered in the District.				Total Deaths in Public institutions in the District.	Deaths of non-resid'nts registered in Public Institutions in the district	Deaths of residents registered in Public Institutions beyond the District.	Nett Deaths at all ages belonging to the District.	
				Under 1 year of age.		At all ages.						
		Number.	Rate. *	Number.	Rate per 1000 births registered	Number.	Rate. *				Number.	Rate. *
1	2	3	4	5	6	7	8	9	10	11	12	13
1893	93,514	4,149	44·3	932	224	2,132	22·8	No	recor	ds	No re	cords
1894	95,904	3,715	38·7	757	204	1,706	17·7	,,	,,	,,	,,	,,
1895	98,356	4,245	43·1	997	234	2,246	22·8	,,	,,	,,	,,	,,
1896	100,870	4,328	42·9	855	197	2,105	20·8	,,	,,	,,	,,	,,
1897	103,445	4,109	39.7	838	204	2,049	19·8	41	—	32	2,081	20·1
1898	106,094	4,120	38·8	793	192	1,979	18·6	27	3	20	1,999	18·8
1899	108,807	4,089	37·5	1016	248	2,419	22·2	35	—	25	2,444	22·4
1900	111,587	4,469	40·0	839	186	2,181	19·5	57	3	49	2,227	19·9
1901	114,439	4,586	40·0	1020	222	2,431	21·2	24	2	40	2,469	21·6
1902	117,007	4,937	42·2	883	178	2,190	18·7	23	3	56	2,243	19·2
Averages for years 1893-1902	105,002	4,274	40·7	893	208	2,143	20·4	†34	†1.5	†33	†2244	†20·3
1903	**119652**	**4,897**	**40·9**	**776**	**158**	**1946**	**16·2**	**24**	**1**	**53**	**1998**	**16·7**

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.
† Averages for six years 1897-1902.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the substraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Resident" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public Institutions" to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses, and lunatic asylums.

Area of District in acres (exclusive of area covered by water) 23,885.

Total population at all ages 113,735 }
Number of inhabited houses 19,210 } At Census of 1901.
Average number of persons per house 5·9 }

Table II.

Vital Statistics of separate Localities in 1903.

WARD.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year
	a.	*b.*	*c.*	*d.*
Ward No. 1	9,921	353	152	55
,, 2	11,703	482	193	87
,, 3	10,649	408	188	69
,, 4	9,767	419	166	66
,, 5	12,324	553	218	95
,, 6	10,371	467	170	66
,, 7	10,069	426	175	65
,, 8 ...	15,841	592	262	97
,, 9	13,899	569	218	78
,, 10	14,847	628	256	100

NOTES.—(*a*) Deaths of Residents occurring in public institutions beyond the district are included in sub-column *c* of this Table, and those of non-residents registered in public institutions in the district excluded.

(*b*) Deaths of Residents occurring in public institutions, whether within or without the district, are allotted to the respective localities according to the addresses of the deceased.

Table III Rhondda Urban District.

Cases of Infectious Disease notified during the year 1903.

Notifiable Disease.	Cases Notified in whole District.							Total Cases Notified in ach Ward.										No. of Cases Removed to the Hospital from each Ward.									
	At all Ages	At Ages—Years.																									
		Under 1	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwd's	1	2	3	4 H	5	6	7	8	9	10	1	2	3	4 H	5	6	7	8	9	10
Small Pox ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria ..	327	12	120	153	23	19	—	20	36	92	42	19	16	16	47	24	15	1	4	16	14	0	5	4	8	5	4
Membranous Croup	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	102	3	1	9	14	71	4	4	5	13	9	4	7	1	10	11	38	—	—	—	—	—	—	—	—	—	—
Scarlet Fever ...	872	27	352	408	64	21	—	21	26	11	72	73	117	157	114	157	124	—	—	—	—	—	—	—	—	—	—
Typhus Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever ..	265	—	28	88	74	75	—	19	6	1	9	7	3	26	175	9	10	15	4	0	7	5	2	22	95	7	4
Relapsing Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Continued Fever ...	10	—	—	5	2	3	—	—	1	—	—	—	1	7	—	—	1	—	—	—	—	—	—	—	—	—	—
Puerperal Fever ...	21	—	—	—	8	13	—	—	2	3	1	1	1	2	2	7	2	—	—	—	—	—	—	—	—	—	—
Plague ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals.	1597	42	501	663	185	202	4	64	76	120	133	104	145	209	348	208	190	16	8	16	21	5	7	26	103	12	8

Note.—The Wards adopted for this Table are the same as those in Tables II. and IV.

Isolation Hospital—Rhondda (Ward 4).

Table IV.—Causes of, and Ages at, Death, during the Year 1903.

CAUSES OF DEATH.	Deaths in or belonging to the whole District at subjoined Ages.							DEATHS IN OR BELONGING TO WARDS (At all ages).										Total Deaths in Public Institutions in the District.
	All Ages.	Under 1 year.	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards	Ward 1.	Ward 2.	Ward 3.	Ward 4.	Ward 5.	Ward 6.	Ward 7.	Ward 8.	Ward 9.	Ward 10	
Small Pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Measles	8	2	6	—	—	—	—	—	—	—	—	1	1	—	6	—	—	—
Scarlet Fever	38	4	22	6	4	2	—	1	—	1	3	3	10	9	4	4	3	—
Whooping Cough	52	27	25	—	—	—	—	1	—	6	13	9	3	6	6	2	6	—
Diphtheria and Membranous Croup ...	42	2	31	7	—	2	—	1	1	13	4	4	3	4	8	4	—	3
Enteric and other Continued Fever ...	44	—	2	8	15	19	—	—	2	—	2	—	2	6	27	3	2	10
Influenza	14	1	1	—	2	8	2	—	1	—	2	1	1	1	3	2	3	—
Epidemic Diarrhœa	109	88	19	—	—	2	—	3	32	6	12	10	8	8	7	4	19	—
Rheumatic Fever	12	—	—	2	3	7	—	—	—	2	2	—	1	—	—	2	5	—
Puerperal Fever	11	—	—	—	4	7	—	—	—	2	—	1	1	2	3	2	—	—
Erysipelas	5	2	—	—	—	2	1	—	—	2	—	—	—	—	—	1	2	—
Venereal Diseases	2	2	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—
Other Septic Diseases	11	3	—	2	—	5	1	1	2	—	1	2	1	—	1	1	2	—
Phthisis	90	—	5	5	15	62	3	5	12	11	5	11	6	15	8	7	10	—
General Tuberculosis	12	2	4	1	—	5	—	—	1	2	3	3	—	2	—	—	1	—
Tabes Mesenterica	7	4	2	1	—	—	—	—	—	—	—	1	1	1	1	—	3	—
Other Forms of Tuberculosis	25	6	2	12	2	3	—	2	4	1	1	4	1	3	4	1	4	—
Cirrhosis of Liver	13	—	—	—	—	10	3	3	1	—	1	2	2	—	2	1	1	—
Cancer, Malignant Disease	53	—	—	1	—	47	5	6	3	8	6	5	6	5	5	5	4	—
Pernicious Anæmia	6	—	—	—	—	5	1	—	1	—	1	—	—	—	2	2	—	—
Rickets	3	2	1	—	—	—	—	—	—	1	1	—	—	—	—	1	—	—
Diabetes	5	—	—	—	—	5	—	—	1	1	—	—	—	2	1	—	—	—
Meningitis	33	12	11	5	4	1	—	3	6	2	—	3	1	1	7	2	8	—
General Paralysis of Insane	3	—	—	—	—	2	1	—	2	—	—	—	—	1	—	—	—	—

								1	2	3	4	5	6	7	8	9	10	
Epilepsy	5	—	—	—	1	3	1	1	—	1	1	—	—	1	—	—	1	—
Convulsions	142	130	12	—	—	—	—	4	8	22	6	12	7	5	28	37	13	—
Other Diseases of Nervous System ..	10	1	—	—	—	6	3	2	1	2	1	—	—	—	2	—	2	1
Heart Disease	107	3	—	4	9	70	21	11	9	17	9	16	11	4	13	9	8	1
Cerebral Hæmorrhage	48	—	—	—	—	30	18	3	2	4	3	4	5	7	5	8	7	—
Embolism and Thrombosis	14	1	—	1	1	6	5	—	3	2	—	2	1	1	1	2	2	—
Aneurysm	2	—	—	—	—	2	—	—	—	—	—	—	—	—	1	—	1	—
Croup	1	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Acute Bronchitis	97	49	16	—	1	23	8	15	3	3	6	16	12	7	14	9	12	—
Chronic Bronchitis	54	—	—	—	—	24	30	6	3	12	4	2	6	6	5	4	6	—
Lobar Pneumonia	57	1	6	3	3	41	3	4	13	6	3	6	2	3	2	9	9	1
Lobular Pneumonia	148	84	58	2	—	4	—	6	17	6	14	10	16	12	27	24	16	—
Pleurisy	8	—	—	1	1	5	1	1	1	—	—	1	—	1	1	2	1	—
Gastric Ulcer	4	—	—	—	2	2	—	—	—	1	—	1	—	—	—	1	1	—
Gastritis	30	22	—	1	—	4	3	7	—	7	4	—	—	—	3	1	8	—
Enteritis	21	13	4	2	—	1	1	2	2	3	3	2	3	—	—	2	4	—
Intestinal Obstruction	23	4	1	1	2	12	3	2	2	1	3	—	1	4	3	3	2	1
Peritonitis	4	—	1	1	1	1	—	—	—	—	—	1	—	—	—	—	3	—
Nephritis	58	3	6	6	3	30	10	2	3	2	7	15	7	4	4	8	6	—
Accidents of Child Birth	18	—	—	—	4	14	—	1	4	—	—	2	—	1	5	3	2	—
Skin Diseases	1	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Dentition	46	35	11	—	—	—	—	5	—	—	1	5	12	4	6	4	9	—
Marasmus	47	45	2	—	—	—	—	11	8	1	—	2	4	11	3	2	5	—
Debility and Inanition	113	107	5	—	—	1	—	4	14	14	14	6	3	12	6	14	26	—
Premature Birth	84	84	—	—	—	—	—	8	8	4	7	14	13	6	15	4	5	—
Old Age	68	—	—	—	—	3	65	15	5	6	6	9	5	5	7	4	6	—
Inquests { Colliery Accidents ...	59	—	—	3	15	39	2	2	6	7	2	11	2	2	5	10	12	4
{ General Accidents	74	14	14	7	4	30	5	9	5	2	7	10	7	9	8	8	9	2
Tumours	4	—	—	—	—	4	—	—	1	—	—	2	—	1	—	—	—	—
All other Causes	50	21	3	1	—	20	5	5	4	5	8	6	5	2	3	6	6	—
RHONDDA	**1998**	**778**	**271**	**83**	**96**	**569**	**201**	**152**	**193**	**188**	**166**	**218**	**170**	**175**	**262**	**218**	**256**	**23**

RAINFALL Returns at Ty'nywaun Waterworks, Treherbert.

Height above sea level, 801 feet.

Furnished by Mr. OCTAVIUS THOMAS, Water Engineer to the Council.

Month.	YEAR 1894.				YEAR 1895.				YEAR 1896.			
	Total depth.	Greatest fall in 24 hours.		Days ·01 or more fell.	Total depth.	Greatest fall in 24 hours.		Days ·01 or more fell.	Total depth.	Greatest fall in 24 hours.		Days ·01 or more fell.
		Depth	*Date*			*Depth*	*Date*			*Depth*	*Date*	
January	12·40	1·27	8	24	7·83	1·55	20	21	3·96	1·33	24	15
Feb. ...	12·60	1·57	25	21	·16	·06	24	3	2·45	1·17	8	13
March ...	8·96	2·27	12	14	9·33	2·41	23	19	10·85	1·19	19	27
April ...	4·51	·82	25	18	6·15	2·51	22	14	2·28	·49	10	17
May ...	6·91	1·73	8	20	·49	·25	31	4	·10	·11	21	2
June ...	5·41	·84	3	18	1·51	·72	30	8	3·62	·65	17	16
July ...	6·41	1·17	24	24	9·97	1·20	1	18	4·82	1·01	25	12
August	6·96	1·30	25	20	10·46	2·14	26	20	5·06	1·03	24	15
Sept. ...	2·31	·91	7	8	2·69	1·51	10	9	12·57	2·39	24	25
October	12·51	2·61	26	13	5·58	1·17	5	16	9·37	1·92	6	19
Nov. ...	12·88	2·71	13	20	12·96	2·23	10	23	2·97	1·39	14	11
Dec. ...	8·75	1·80	17	22	8·41	1·07	12	25	18·40	1·79	27	26
Totals ...	100·61	2·71	13	222	75·54	2·51	22	180	76·45	2·39	24	198

	YEAR 1897				YEAR 1898				YEAR 1899			
January	4·35	·72	6	17	6·06	1·07	5	15	15·11	3·26	20	22
Feb. ...	9·21	1·30	19	22	6·13	·94	25	23	8·53	1·18	12	14
March ...	11·60	1·96	2	28	2·66	·64	19	17	3·68	2·04	25	10
April ...	9·30	2·36	17	22	5·26	·90	11	13	9·04	1·15	6	22
May ...	3·70	·84	29	16	5·32	·51	5	22	6·40	2·67	19	18
June ...	4·93	1·30	8	12	5·25	1·00	23	17	1·83	·82	30	9
July ...	2·92	·80	25	14	1·83	·89	1	6	1·31	·38	1	12
August	11·79	1·49	29	25	9·30	1·65	18	21	2·90	1·18	29	9
Sept. ...	9·98	1·89	1	17	3·13	1·49	29	13	4·37	·79	30	21
October	4·51	1·51	15	11	12·42	1·64	17	22	7·32	1·61	3	14
Nov. ...	9·11	3·25	12	14	11·19	3·85	2	20	7·60	2·14	7	12
Dec. ...	18·42	4·09	29	23	16·23	3·04	26	26	5·96	1·33	28	23
Totals ...	99·82	4·09	29	221	84·78	3·85	2	215	74·05	3·26	20	186

	YEAR 1900				YEAR 1901				YEAR 1902			
January	11·60	2·36	6	24	6·91	1·46	26	22	5·80	1·31	1	19
Feb. ...	12·17	3·48	15	21	3·44	1·20	26	13	3·86	·90	22	11
March ...	1·44	·50	18	8	6·25	1·51	29	15	5·19	·94	14	19
April ...	4·37	·60	3	17	9·68	1·37	2	16	4·21	1·35	21	14
May ...	4·78	1·67	21	17	2·42	1·43	30	9	3·99	·75	16	23
June ...	6·47	1·30	24	18	3·94	1·85	20	11	4·91	·70	30	19
July ...	2·95	·90	31	12	2·25	1·15	25	10	3·67	1·24	26	14
August	7·50	1·58	6	16	7·57	2·31	13	17	4·53	·91	18	24
Sept ...	5·02	1·59	26	14	5·80	1·09	7	23	2·72	·82	2	15
October	12·40	2·51	4	22	5·09	·87	17	22	7·97	1·89	13	22
Nov. ...	9·90	1·87	15	24	4·33	1·32	11	10	7·90	1·41	24	18
Dec. ...	16·30	1·61	30	24	14·00	2·73	7	24	9·90	2·46	16	17
Totals ...	94·90	3·48	15	217	71·78	2·73	7	192	64·70	2·46	16	215

RAINFALL RETURN AT TY'NYWAUN WATERWORKS, TREHERBERT.

—:o:—

5 Inch Gauge. 801 feet above Sea Level.

YEAR 1903.

MONTH.	Total Depth	Greatest Fall in 24 Hours.		Days .01 or more fell.
		Depth.	*Date.*	
January	14·45	2·15	4	25
February	7·83	1·11	22	21
March	15·84	2·28	17	30
April	3·70	·98	25	16
May	5·77	1·92	16	20
June	1·85	·50	14	7
July	4·90	1·48	21	19
August	13·80	2·25	20	23
September	9·19	1·61	8	20
October	20·56	2·90	14	31
November ...	6·60	1·48	27	21
December	8·96	1·41	12	19
TOTAL	113·45	2·90	14	252

METEOROLOGICAL RETURNS.

Furnished by Mr. OCTAVIUS THOMAS, Water Engineer to the Council.

MAERDY (height above Sea Level 1,255 feet.)

MONTH.	1898.				1899.				1900.				1901.				1902.				1903.			
	Total Rainfall in Month in inches.	Days on which ·01 or more Rain fell.	Greatest fall in 24 hours.	Date of Greatest fall.	Total Rainfall in Month in inches.	Days in which ·01 or more Rain fell.	Greatest fall in 24 hours.	Date of Greatest fall.	Total Rainfall in Month in inches.	Days on which ·01 or more Rain fell.	Greatest fall in 24 hours.	Date of Greatest fall.	Total Rainfall in Month in inches.	Days on which ·01 or more Rain fell.	Greatest fall in 24 hours.	Date of Greatest fall.	Total Rainfall in Month in inches.	Days on which ·01 or more Rain fell.	Greatest fall in 24 hours.	Date of Greatest fall.	Total Rainfall in Month in inches.	Days on which ·01 or more Rain fell.	Greatest fall in 24 hours.	Date of Greatest fall.
January	2·38	16	.67	5	8·19	22	1·82	20	7·93	24	1·62	6	4·60	12	1·17	26	2 97	11	·48	4	8·84	22	1·63	4
Februa'y	3·52	22	·43	3	6·00	14	·89	12	7·90	17	1·71	15	2·49	9	·77	26	3·06	7	1·05	23	3·39	18	87	24
March	1·97	19	·38	19	1·81	13	·78	25	1·23	7	·18	21	3·49	9	·85	29	3 55	14	66	14	11·03	27	1·43	17
April ..	3·32	12	·61	11	6·10	23	·84	6	2·20	15	·46	3	6·94	15	1·15	2	3·29	8	1·00	21	2 91	13	·84	25
May ..	4·32	23	·45	3	5·82	16	1·87	19	3·59	14	1·00	21	1·92	9	·88	30	3·33	11	·58	17	4·66	14	1·20	16
June ...	3·73	17	·68	23	1·92	7	·70	30	4·75	17	·79	19	3·09	9	1·24	20	4·57	19	·65	30	1·81	6	·66	10
July ..	1·41	6	·60	1	·85	9	·31	11	2·55	11	·85	31	1·66	6	·84	25	2·87	9	·96	25	3·66	15	1·17	21
August	5·86	20	1·62	18	3·15	11	1·08	29	6·48	15	1·14	21	5·92	16	2·00	13	3·47	22	·60	18	10·52	21	1·50	14
Sept. ...	2·00	12	·93	29	3·11	18	·38	30	3·10	10	·71	30	4·74	20	·92	16	2·76	11	·64	23	6·87	15	1·08	24
October	9·47	24	1·24	17	5·07	11	1·17	1	10·12	18	2·21	4	3·97	20	1·07	17	5·86	18	1·02	12	16·55	29	2·50	14
Nov. ...	7·27	16	2·13	2	5·09	12	1 48	7	7·88	21	1·53	15	3·19	7	1·08	11	6·68	15	·90	27	4·16	16	1·05	27
Dec. ...	8·85	25	1·19	4	3 82	18	1·05	28	9·62	22	1·20	16	9·48	21	2·06	31	5·31	12	1·15	1	6·78	15	1·00	12
Totals ...	54·10	212	2·13	2	50·93	174	1·87	19	67·35	191	2·21	4	51·49	153	2·06	31	47·72	157	1·15	1	81·18	211	2·50	14

Meteorological Returns.—The Hospital, Ystrad Rhondda. (Height above sea level 590 feet.)

MONTH.	1899.				1900.				1901.				1902.				1903.			
	Total rainfall in month in inches.	Days on which ·01 or more rain fell.	Greatest fall in 24 hours.	Date of Greatest Fall.	Total rainfall in month in inches.	Days on which ·01 or more rain fell.	Greatest fall in 24 hours.	Date of Greatest Fall.	Total rainfall in month in inches.	Days on which ·01 or more rain fell.	Greatest fall in 24 hours.	Date of Greatest Fall.	Total rainfall in month in inches.	Days on which 01 or more rain fell.	Greatest fall in 24 hours.	Date of Greatest Fall.	Total rainfall in month in inches.	Days on which ·01 or more rain fell.	Greatest fall in 24 hours.	Date of Greatest Fall.
January ...	11·96	23	2·90	20	9·09	24	1·80	7	4·96	18	1·20	27	4·49	16	1·33	1	11·62	20	1·82	4
February ...	5·85	14	·91	12	11·07	18	3·20	16	1·64	9	·90	27	2·94	9	·90	22	5·04	17	1·15	22
March ..	3·23	9	2·30	25	1·02	7	·43	20	5·06	14	·90	30	4·35	13	·97	14	13·51	23	2·22	17
April ...	7·01	21	1·20	6	2·64	13	·50	4	7·45	16	1·00	8	3·23	10	·87	4	2·44	10	·83	25
May ..	4·44	18	2·00	19	3·11	11	1·40	22	1·33	7	1·00	31	3·20	18	·52	27	4·46	18	1·57	16
June ...	·72	5	·40	20	3·95	15	1·00	25	3·42	10	1·60	21	4·07	18	·53	29	1·74	9	·58	14
July ..	1·55	7	·90	1	1·23	11	·50	1	2·33	10	·60	26	2·87	9	1·20	26	5·83	13	1·13	22
August ...	1·32	7	·50	30	7·26	16	1·30	3	6·50	14	1.50	14	4·64	17	·87	25	12·40	26	1·79	14
September ...	2·68	18	·51	22	3·13	11	1·30	27	4·28	14	1·14	16	2·68	10	·65	23	7·46	20	1·24	10
October ...	6·54	14	1·50	30	10·25	20	1·90	5	3·38	18	·64	24	6·76	16	1·28	13	17·74	31	1·98	14
November ...	5·35	11	1·70	4	9·06	21	1·40	16	3·16	7	·91	11	5·60	16	1·25	8	4·53	18	1·24	27
December ...	4·36	17	1·20	29	11·98	23	1·50	31	11·62	20	1·84	7	6·69	14	1·24	16	7·61	16	1·29	3
Totals ...	55·01	164	2·90	20	73·79	190	3·20	16	55·13	157	1·84	7	51·52	166	1·33	1	94·38	221	2·22	17

Special Report

Upon a milk-borne epidemic of Typhoid Fever at Porth, Rhondda, in the first half of the year 1903.

General Description.—The locality involved is, in common with the rest of the district, almost entirely an industrial one, most of the attacked houses being ranged in terraces on the hillside and occupied in the large majority of cases by colliers and their families. The area affected does not exceed 120 acres in extent, and is thus but a small portion of the 23,885 acres which go to form the whole district.

The number of houses in the implicated area is estimated at 906, with a population of 5,436, the average number of persons per house being taken as six, as found at the time of the last census in 1901.

Sanitary Condition of area.—The sanitary condition of the houses in the affected area was satisfactory on the whole. The houses are substantially built of native stone and the large majority of them are comparatively new. The houses are provided with drains which are connected to the sewerage system of the district. The inlets to the drains are trapped in most cases with earthenware gullies and properly disconnected by means of disconnecting traps, but a minority are provided with D. traps and not disconnected. The drains are ventilated in the usual way. The closet drains of one terrace consisting of 12 houses discharge into the river, the sewer being too high to allow a connection to be made. The closets are in the main of the wash-down type and provided with flushing appliances; several however are hand-flushed. None of the attacked houses possessed any indoor closets or drain inlets. The back-areas in the case of many of the attacked houses are imperfectly paved and damp. The sewers are ventilated by means of gratings placed at the street level, and by the ventilating shafts on the house drains where these are devoid of disconnecting traps. The structural defects were not many and, when found, were generally of minor importance. The scavenging of house refuse is performed daily (except on Sundays), the refuse being placed in buckets or similar receptacles in the streets to await the attention of the scavenger. The streets in the most implicated portion of the involved area are badly formed and have not been taken over by the Urban District Council.

Hospital Accommodation.—The Council is possessed of an Isolation Hospital opened in 1902, and designed to accommodate 32 patients in 2 pavilions of equal size. Accommodation is also provided for 4 more patients at the Council's Old Hospital, the two buildings being close to each other and on the same site. At one time during the height of the epidemic, the hospital contained 52 patients, 13 of whom were suffering from Diphtheria and lodged in one pavilion, while the remaining 39 were cases of Typhoid Fever. There was therefore considerable overcrowding in the portions set apart for the isolation of patients suffering from the latter disease.

Incidence of the disease in former years.—Previous to March 17th, 1903, no case of Typhoid Fever had been notified from Porth during the year 1903. During the previous year also, the district had been exceptionally free from the disease, Porth and locality not less so than the rest of the district. Indeed the year 1902 witnessed the establishment of a record for the district in this respect since the adoption of the Notification Act in 1894; thus the incidence of the disease was only 1 in every 1,000 of the population in 1902, whereas during the preceeding years it varied from 1 in 659 in 1896 to 1 in 293 in 1898.

The Epidemic.—On the 17th of March, 1903, five cases of typhoid fever in one family were notified to the Medical Officer of Health. On the 20th, six more cases were notified in as many houses; on the 21st, three cases; and on the 23rd, fourteen cases, eleven of which were domiciled in houses not previously implicated. If we take, week by week, the period of 19 weeks over which the epidemic extended, the figures work out as follows :—

Week.	Date.	Number of Cases.	Number in house or houses not already implicated.
1st	(March 17th to March 23rd)	28	19
2nd	(March 24th to March 30th)	29	23
3rd	(March 31st to April 6th)	23	13
4th	(April 7th to April 13th)	13	10
5th	(April 14th to April 20th)	15	11
6th	(April 21st to April 27th)	5	5
7th	(April 28th to May 4th)	9	2
8th	(May 5th to May 11th)	4	1
9th	(May 12th to May 18th)	9	5
10th	(May 19th to May 25th)	6	4
11th	(May 26th to June 1st)	3	1
12th	(June 2nd to June 8th)	8	6
13th	(June 9th to June 15th)	2	2
14th	(June 16th to June 22nd)	3	2
15th	(June 23rd to June 29th)	1	—
16th	(June 30th to July 6th)	8	1
17th	(July 7th to July 13th)	1	1
18th	(July 14th to July 20th)	1	1
19th	(July 21st to July 23rd)	1	1
		169	108

It will be seen that 169 cases of the disease were notified, 27 of which died, a fatality of 15·9 per cent of the cases attacked being thus occasioned. The total number of houses attacked amounted to 108, of which 41 were situated in two streets. The incidence of the disease in respect of age and sex is seen from the following tables :—

	Ages.	0-5	5-15	15-25	25-65	65 and upwards	Totals.
Fatal and Non-Fatal.	Male ...	11	26	21	23	—	81
	Female	11	29	28	20	—	88
	Totals...	22	55	49	43	—	169

	Ages	0-5	5-15	15-25	25-65	65 and upwards.	Totals.
Fatal.	Male ...	0	2	4	7	—	13
	Female	1	3	5	5	—	14
	Totals...	1	5	9	12	—	27

	Ages.	0-10	10-20	20-40	40-60	60 and upwards	Totals.
Fatal and Non-fatal.	Male ...	25	22	30	4	—	81
	Female	25	30	25	8	—	88
	Totals...	50	52	55	12	—	169

	Ages.	0-10	10-20	20-40	40-60	60 and upwards	Totals.
Fatal.	Male ...	2	1	9	1	—	13
	Female	3	5	5	1	—	14
	Totals	5	6	14	2	—	27

Throughout the epidemic 96 of the cases were removed to, and treated at, the Council's Isolation Hospital. The portion of the institution allotted to the treatment of this disease was considerably overcrowded on several occasions and many of the remaining cases were refused admission owing to the lack of sufficient accommodation. Notwithstanding the extent to which the typhoid wards were utilized, the advantages derivable from the skilled nursing and the superior conditions associated with a well-equipped Isolation Hospital are well exemplified by the comparative results shown in the following table :—

	Total Number	Proportion to Total.	Number of Deaths	Mortality per cent of cases treated.
Removed to Hospital ...	96 ...	56·7 per cent ...	4 ...	4·2
Treated at home ...	73 ...	43·3 per cent ...	23 ...	31·5

Of the 108 primary cases, 72 were notified between the 17th of March and the 15th of April. Some member or members of 63 out of the 72 households thus attacked were ascertained to have been directly supplied with milk by a certain milk-vendor, A.B. whose dairy was situated in one of the streets most involved. In the case of the remaining 36 primary cases, the association with this particular milk supply was less apparent for only 4 of them obtained their milk from this source. A.B. who supplied 146 houses, obtained all his milk, with the exception of that yielded by one cow, kept on his premises, from a farm T., situated in the area of a neighbouring authority and distant about 9 miles from the stricken district. The milk obtained from the one cow referred to was sold on A.B.'s premises, and was not usually mixed with the milk from the farm T.; occasionally however that portion (if any) of the farm milk which was not sold on the round was added to the milk derived from A.B.'s cow and afterwards sold at the dairy. The milk sent from the farm was not taken to the dairy before distribution, but was emptied into the distributing cans at the railway station and conveyed direct to the customers. The actual distribution was effected by 4 members ot A.B.'s household, each one having his or her own well-defined area to supply. The 4 areas thus formed were more or less equally implicated, due allowance being made for the disproportion in the number of houses supplied in the respective areas.

On March 21st, notifications of 2 cases of typhoid fever at A.B.'s house, were received by the local authority. Inquiry immediately instituted led to the suspicion that two more members of the same household were suffering from a mild type of the disease, for they complained of headache, lassitude, and mild diarrhœa, for two or three days. A.B.'s household consisted of five persons with the following histories:—

A.B., male, aged 65. No history of any kind of illness.

M.B., female, aged 51. Complained on March 12th and few following days of headache and lassitude but had no diarrhœa. Was in bed for three days. Application of Widal's test on April 2nd and again on April 18th, gave a negative result on each occasion. Not notified.

D.B., male, aged 9. Began to complain on the 12th of March of headache, and of slight diarrhœa on the 13th and 14th. Was in school on the 12th. Kept to his bed for a week. Widal's negative on March 24th and on April 2nd (with a dilution of 1 in 40 for one hour), but on April 18th there was an indication of clumping with a dilution of 1 in 20. Not notified.

J.B., female, aged 15. Onset given as having been on March 13th. Notified on the 21st and removed to the hospital where the illness ran a typical course of moderately severe typhoid fever.

H.B., female, aged 18. Onset on March 16th, notified on the 21st, removed to the hospital, where the disease ran a typical course.

Prior to March 12th, which was given as the date of onset of the illness of each of the two suspected but unnotified cases in A.B.'s household, 19 of the notified cases were said to have sickened, the earliest date of onset being given as the 27th of February.

Almost the whole of the affected area was supplied with water by the Pontypridd Water Company, which also supplied a very considerable area of the district in which Porth is situated, but with the exception of Porth, the area thus supplied was practically free from typhoid throughout the period covered by the epidemic. Five of the houses however (including A.B.'s) were supplied with water from two small springs on the hillside. Three of these houses, situated in two streets, were attacked; two of them, however, were regularly supplied with milk by A.B, and the third house involved had typhoid fever next door. In addition to this spring water, A.B.'s house was also supplied with water from the Company's Water-works, but the private supply was said to be always used for domestic purposes and for washing the milk-cans, the Company's supply being used for washing out the cow-house and the premises generally. The water derived from the two springs mentioned was conducted therefrom for a distance of twenty yards to a small brick reservoir which is arched over and cemented all round. The springs themselves are situated near to a footpath on the hillside and one of them is within ten yards of a quarry incline, and both springs are so placed that contamination of them can easily occur especially through the instrumentality of the quarry-men passing to and from work.

Inquiries at the farm T, served to elicit the following facts :—

The morning's milk only was sent to A.B., and was handled by three members of the staff engaged on the farm. After milking time, the milk was strained into the ordinary cans or churns, which were then sent by rail to A.B. at Porth, but the milk was not subjected to any other treatment at this time of the year.

It was stated by the farmer to be the custom to scour and scald the returned churns every day. Over night some water direct from the well,—the only source of drinking water at the farm,—was left in the churns which were then merely emptied in the morning before being filled with the strained milk. There was no history of any recent illness in the farmer's family, or among any of the farm hands. The well called for special consideration. It is sunk in gravel, and is said to be 30 feet deep. It was lined as far as could be seen with bricks loosely put together and not built above the surface of the surrounding ground. The well opening was covered by loose planks, one or more of which had to be removed each time water was raised by means of bucket and rope. The surroundings of the well were filthy, and it was obviously an easy matter for some of the filth to percolate through into the well or to flow over its edge. Within 20 yards of the well was a large heap of farm-yard manure, some of the liquid from which probably drained into the well through the gravel. At the end of the report will be found the results of the chemical analysis of the well water as well as those of the bacteriological examinations of the several samples of milk and water taken. The analysis and examinatons were carried out at the Glamorgan County Public Health Laboratory, Cardiff.

Steps taken to prevent the spread of the disease. As soon as the incidence of the disease led to the belief that the A.B.'s milk was the vehicle by means of which the disease was propagated, an inspection of the premises was made and several times repeated, and the two inmates notified were forthwith removed to the hospital.

Persistent endeavours were made to obtain a list of A.B.'s customers, and a promise to supply a list was given but it was fulfilled rather tardily and a delay of two days was caused. In the meantime, bills urging all to boil both milk and water before consumption, were prepared and printed in readiness to be distributed, and as soon as the list was procured, a house to house distribution of these bills was effected, other houses in the implicated streets also receiving attention.

Steps were initiated whereby the distribution of the suspected milk in the Rhondda Urban District might be stopped but before the formalities required by law could be completed, A.B. voluntarily refused to take any more milk from T. farm for any purpose.

Cases were removed to the fever hospital as rapidly as the ambulance could perform the somewhat long journey, until all the available beds were occupied. The proportion thus removed, as well as the results, as far as the patients themselves were concerned, have already been given (page 118).

In the case of all persons treated at home printed instructions together with disinfectants, in the form of perchloride of mercury, were left at each house with a view of lessening the risk of contracting the disease run by the other inmates.

After the removal, after the death, or after the recovery, of any patient, all the presumably-infected clothing, etc., were disinfected by steam, and the rooms disinfected by means of formaldehyde gas.

House-to-house visiting was controlled and prevented as far as possible during the course of the epidemic. Sanitary defects whenever found were remedied.

Reference to the table on page 116, will show that the epidemic extended over 19 weeks. The onset of the illness in many of the so called primary cases was very later than might have been expected, if the consumption of A.B.'s milk had been the cause. Inquiry in the case of such often served to provide some satisfactory explanation for the apparent delay in the development of the disease. In the case of a few, the cases were not notified until after relapses had occurred. In the case of many more, those notified were not really the primary cases, but had contracted the disease from earlier but unrecognised cases, most of which were children. In our attempts to account for the latter class, the application of Widal's serum reaction proved of much assistance, as well as in the diagnosis of certain anomalous forms of the disease. The evidence in favour of the view that the disease was propagated by means of the milk distributed by A.B. appears to be overwhelming. All the enquiries made however failed to discover at what stage in the treatment it received, the essential cause of typhoid gained access to the milk. A consideration of the respective dates of onset of the attacks from which the several members of A.B.'s household suffered tends to prove that all these contracted the disease in the same way as the other sufferers, and that neither of them was the source of mischief. On the other hand, no history of recent illness of any member of the farmer's family or his staff was obtainable. It is true that the chemical analysis and bacteriological examinations of the samples of both the water and the milk taken at the farm afford abundant evidence of contamination, and the method of dealing with the cans adopted at the farm and described above could not but contaminate the milk to the extent consequent upon the admixture of the contaminated well-water with the milk. In the absence however of any evidence of the recent occurrence of a case of typhoid in some way associated with the farm T. and without demonstration of the existence of the bacillus typhosus in either the water or the milk obtained from the farm T. for analysis and examination, one cannot confidently maintain that the infection of the milk took place at the farm. In this connection one fact learned in course of the inquiry into the causation of the epidemic may be mentioned as indicating that the milk was, on one occasion at least, infected by the time it reached Porth Station. On the evening of March 2nd, a social gathering was held in the vestry of a certain chapel. All the milk (2 gallons) required was supplied by A.B., and at the end of the meeting the unconsumed milk was freely drunk by 4 persons, who were together during the evening. All four died of the disease the dates of the onset given and the dates of death being as follow :

	Age.	Probable date of onset.	Date of death.
1. T.M. ...	28 years ...	March 14th ...	March 26th
2. L.P. ...	19 years ...	March 20th ...	March 28th
3. W.F. ...	24 years ...	March 9th ...	April 6th.
4. J.H.C. ...	27 years ...	March ? ...	April 8th.

The families, of which Nos. 2, 3 and 4 were members, obtained their daily supply of milk from A.B., but in the case of T.M., such was not the case as he lived a considerable distance from the locality affected. T.M. (No. 1) and L.P. (No. 2) were treated at the hospital and suffered from a peculiarly maligant type of the disease. The two gallons of milk supplied by A.B. for the social gathering on March 2nd, had the following history:—On reaching Porth Station the milk was taken from the churn in which it was sent from the farm T. and placed in a two gallon jack, and was then conveyed by J.B., one of the milkman's daughers, direct to the chapel vestry where both milk and jack were left until after the gathering was over. Although J.B. the daughter subsequently contracted typhoid fever, the onset being given as March 13th, she was said to be in her usual health when she conveyed the two gallons of milk to the place to the meeting.

Results of the Bacteriological Examination of Water derived from private supply at AB's house.

Number of Organisms developing at 37° C.—2 per c.c.
" " " 20° C.—192 per c.c.
B. Coli present in 10 c.c. and 40 c.c., not in ½ c.c. or 2 c.c.

Bacteriologist's Remarks:—

Bacteriologically, the water is open to suspicion of contamination.

Results of the Bacteriological Examination of the Pontypridd Company's Water at A.B.'s house.

Number of Organisms developing at 37° C.—0 per c.c.
" " " 20° C.—32 per c.c.
No B. Coli in ½ c.c., 2 c.c., 10 or 40 c c.

Bacteriologist's Remarks:—

Bacteriologically, a good water.

Results of Bacteriological Examination of Water obtained from Well at T. farm.

Number of Organisms developing at 37° C —906 per c.c.
   ,,   ,,   ,,   20° C.—plates liquefied in 24 hours.
B. Enteritidis Sporogenes present in 1 c.c. and 5 c.c.
B. Coli present in 1 c.c.

Bacteriologist's Remarks :—

The presence of B. Enteritidis in 1 c.c. of the water strongly points to gross sewage contamination. B. Coli confirms the opinion. Bacteriologically, not a potable water.

Results of the Bacteriological Examination of Milk taken from A.B.'s dairy.

Organisms developing at 37° C.—7100 per c.c.
   ,,   ,,   20° C.—plates liquefied.
B. Coli present in ½ c.c., not in 1/10 c.c.

Bacteriologist's Remarks :—

An unsatisfactory milk. Bacteriologically, of doubtful purity

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Results of the Bacteriological Examination of Milk taken from T. farm.

Number of Organisms developing at 37° C.—5280 per c.c.
   ,,   ,,   ,,   20° C.—plates liquefied.
B. Enteritidis Sporogenes present in 1 c.c. of Milk.
B. Coli present in ½ c.c. of Milk.
Streptococci present in 1/10 c.c. of a centrifugalised sample of 10 cc of Milk.

Bacteriologist's Remarks :—

A bad milk. Bacteriologically, unfit for consumption.

Results of the Chemical Analysis of Water taken from Well at T. farm.

Number of Sample		310
Date of Analysis		March 31st to April 4th, '03
Appearance in two foot tube		Yellowish green. Fairly clear
Reaction		Distinctly alkaline.
Total Solid Matter	Parts per hundred thousand.	——
a. Votalile		——
b. Fixed		——
Appearance on Ignition		——
Total Hardness		22·6 H.
a. Temporary ...		——
b. Permanent ...		——
Chlorine		2·4
Nitrogen as Nitrates		Considerable amount.
Oxygen absorbed from Permanganate ... (In hours at).		——
Saline (or "Free") Ammonia ...		·0018
Organic (or "Albuminoid") Ammonia		·0146
Poisonous Metals		Nil.
Nitrates		Nil.
Phosphates		Faint traces.
Sulphates		Fair amount.
Microscopic Examination of the Sediment ...		Considerable amount. Vegetable matter (finely divided debris, vegetable tissue and cells). Animalculæ very numerous.

Analyst's Remarks :—

A moderately hard water.

The albuminoid ammonia figure is distinctly high, and the sediment is unsatisfactory for a well water. Chemical analysis of the sample shows evidence of organic contamination.